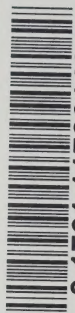



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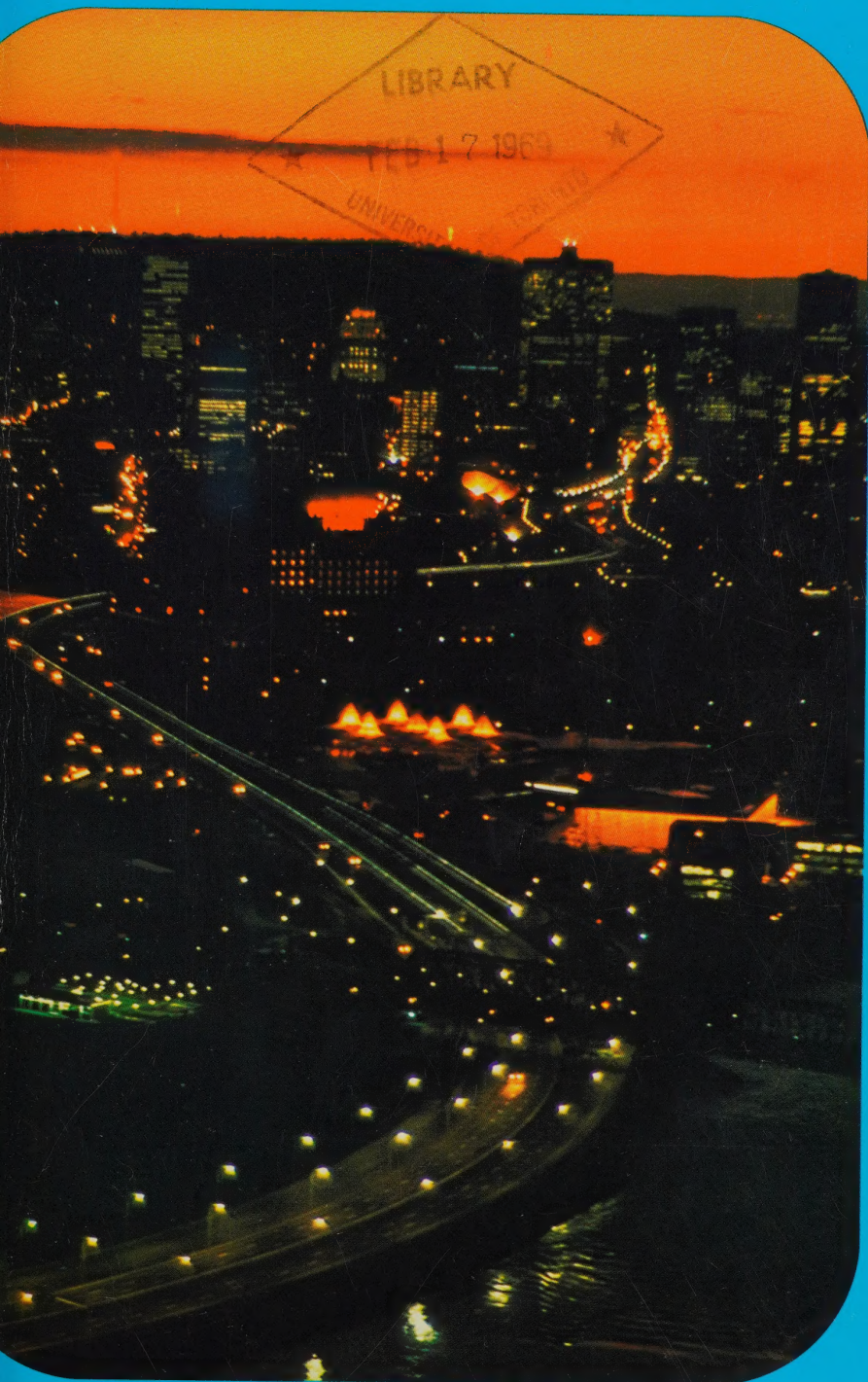


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Large cities everywhere, with their job opportunities, their conveniences and their services, draw unto themselves the modern-day mobile population. Canada's three largest cities—Montreal, Toronto and Vancouver—contain within their metropolitan boundaries well over one quarter of the country's population.

Photo by George Hunter



A brilliant New Year's eve display on Parliament Hill in Ottawa ushers out 1967, Canada's Centennial Year.



CANADA 1968

*The Official Handbook of Present
Conditions and Recent Progress*

Prepared in the

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Dominion Bureau of Statistics

Ottawa.

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Foreword

Canada 1968 continues an annual series that began in 1930. It presents, by the use of text, table and illustration, a factual survey of the Canadian scene for persons in Canada and abroad who are interested in the economic, social and cultural progress of this country. The publication is prepared from statistical and textual material provided by the Dominion Bureau of Statistics and by other Federal Government departments and agencies and the illustrations are secured from a wide range of governmental and commercial sources.

Canada 1968 was planned and produced in the Year Book Division of the Dominion Bureau of Statistics.

Walter E. Duffett.

Dominion Statistician.

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Land and People



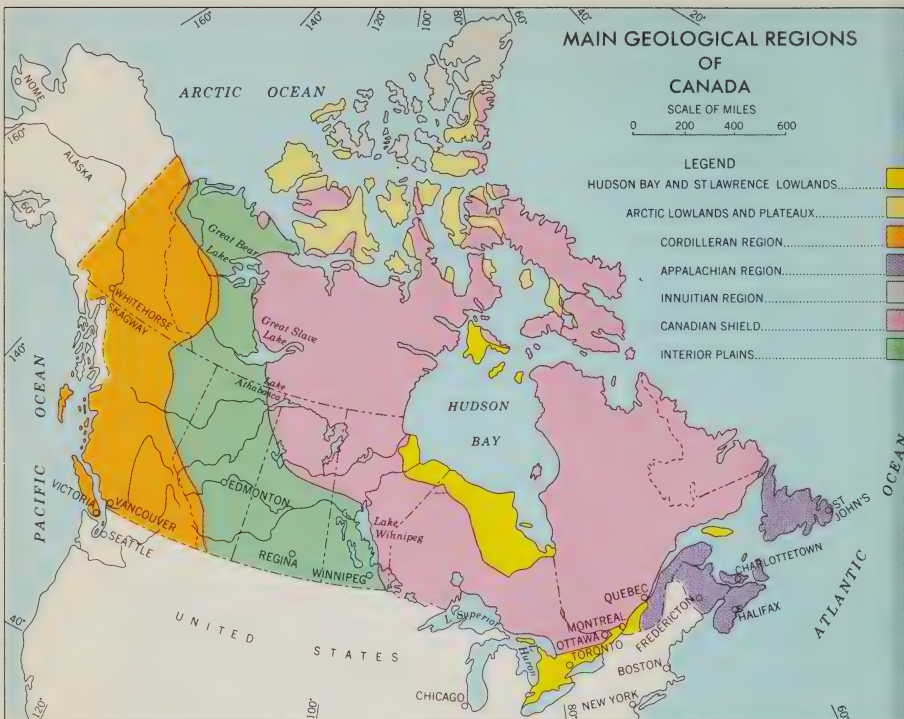
This Land of Canada

Canada is a land of contrasts. It need hardly be said that in its vast area of 3,582,000 sq. miles—a straight-line distance of 3,223 miles from east to west and of 2,875 miles from south to north—it encompasses countless variations of topography, climate and resources. A traveller, driving by highway from St. John's on the northeast tip of Newfoundland to Vancouver on the southwest coast of British Columbia, covers 4,860 miles. It is the largest country in the Western Hemisphere and second only in size to the Union of Soviet Socialist Republics in the world but, because much of its land is mountainous and rocky or has an arctic climate, present development extends over only about one third of its area. Bordering this great land are three vast oceans—the Atlantic, the Pacific and the Arctic—giving it an 18,000-mile mainland coastline. The border adjoining the United States in the south is 3,987 miles long and that adjoining Alaska in the northwest 1,540 miles.

Perhaps the most outstanding physiographic feature of this land is the great Canadian Shield, a vast rugged area of very old Precambrian rocks surrounding Hudson Bay and covering nearly one half of the country. It stretches from the Mackenzie River basin in the northwest to the eastern tip of Labrador in the northeast and tapers southward to end in the most westerly of the Great Lakes. The Shield is characterized by countless lakes, rocky ridges, rounded knobs of rugged terrain and precipitous rivers and it is this region that forms the vast storehouse of base metals which, linked with abundant energy and forest resources, provides the nation with the fundamental elements of industrial power.

Flanking the Shield to the south and southeast lies the St. Lawrence Lowlands, a flat and fertile plain shaped like a triangle and bounded by Georgian Bay, the lower Great Lakes and the St. Lawrence Valley. Here, rich farmlands and orchards and thriving cities and towns support two thirds of the whole population of the country. Eastward to the rugged coast facing the Atlantic is the Appalachian region which contains a complex mass of mountain ranges planed down to a moderate elevation by long erosion, broad river valleys and sheltered plains. Large deposits of lead and zinc, iron and coal, fluorspar, gypsum and salt are found in this region and much of it is densely forested. Except on the Island of Newfoundland, there are extensive areas of rich farmland that are of valuable economic importance to the area.

To the west of the Shield and extending to the Rocky Mountains lie the Interior Plains. Some 800 miles in width along the southern border and tapering to 100 miles at the mouth of the Mackenzie River at the Arctic Ocean, these plains are an extension of the great central plains of the Continent. The prairies extend westward in three levels or steps with elevations averaging 700 feet, 2,000 feet and about 4,000 feet, respectively. Glacial lakes laid down fertile clays and other marine sediments which today form some of the flattest and most productive farmlands, while elsewhere the scene is one of rather hummocky ground, innumerable sloughs and slightly rolling surfaces suited especially to ranching. The prairies in general are underlain with fuel-bearing formations providing abundant resources of oil and gas and in the southern areas are found the world's largest reserves of potash.



To the extreme west, the Cordilleran region, extending throughout British Columbia and Yukon Territory, comprises the Rocky Mountain system, the interior plateaux, the Coastal Range, the inner passage along the coast and the outer arc of islands. Complex in structure, the region possesses lofty mountain peaks, deep valleys, low mountain passes, spectacular gorges, fertile river basins and glacier-cut fjords that provide a highly indented shoreline of utmost value for coastal fisheries. Although agriculture is limited to the Fraser delta and a few interior valleys, the precipitous rivers and mountain lakes constitute an abundant source of hydro-electric power for the service of industry based largely upon mineral and forest resources.

The remaining regions—the Arctic Lowlands and the Innuitian—comprise the islands of the Far North and are of little economic value at present, although they are a potential source of mineral wealth, particularly petroleum.

Thus, Canada is a northern country of diversity and magnificent natural beauty—widespread forests, giant freshwater lakes, tumultuous rivers, rolling fertile farmlands, broad flat prairies and majestic mountains afford a splendid background for thriving cities, intricate transportation networks and huge energy, mining and manufacturing complexes. The forests, covering some 1,700,000 sq. miles of its territory, have been a source of wealth since the earliest days of settlement—the rushing tumbling rivers of the Central and Pacific regions provide great quantities of power required for industry and modern living—the mountains, rocks and sands year by year yield up more of their vast stores of minerals, valued in 1966 at nearly \$4,000,000,000 — the broad

wheatfields of the prairies, the cattle ranges of the foothills and the diversified farmlands across the country bring to the farmers a net income of between \$1,500,000,000 and \$2,000,000,000 each year — and the seas and inland waters provide as much as 2,600,000,000 pounds of fish in a season as a reward for the efforts of 80,000 fishermen. These resources of nature are basic to the continuing development of this now highly industrialized country which has a comparatively small population of just over 21,000,000 located for the most part along the southern third of the country, mainly in large cities or widely spaced communities. Linking these scattered peoples together are excellent transportation and communication systems — the St. Lawrence–Great Lakes waterway carries deepsea shipping more than 2,000 miles into the heart of the country — two of the largest railway systems in the world operate from one end of the country to the other — transcontinental pipelines carry crude oil, petroleum products and natural gas to ultimate markets — networks of highways and roads carry heavy traffic from community to community — and highly efficient air transport facilities serve the domestic needs of the well-populated and the isolated areas of Canada and operate as well over extensive international routes. Indeed, it may be said that air transport services have been of greater assistance in the recent development of resources in Canada than anywhere else in the world and, in many isolated areas, of greater assistance than any other type of transport.

Politically, Canada is divided into ten provinces and two territories. Each province is sovereign in its own sphere and administers its own natural resources. The resources of the two territories, because of the remoteness, the great extent and the meagre and scattered populations of these areas, are administered by the Federal Government.

Approximate Land and Freshwater Areas of the Provinces and Territories

Province or Territory	Land	Freshwater	Total	Percentage of Total Area
	sq. miles	sq. miles	sq. miles	
Newfoundland	143,045	13,140	156,185	4.1
Island of Newfoundland	41,164	2,195	43,359	1.1
Labrador	101,881	10,945	112,826	3.0
Prince Edward Island	2,184	—	2,184	0.1
Nova Scotia	20,402	1,023	21,425	0.6
New Brunswick	27,835	519	28,354	0.7
Quebec	523,860	71,000	594,860	15.4
Ontario	344,092	68,490	412,582	10.7
Manitoba	211,775	39,225	251,000	6.5
Saskatchewan	220,182	31,518	251,700	6.5
Alberta	248,800	6,485	255,285	6.6
British Columbia	359,279	6,976	366,255	9.5
Yukon Territory	205,346	1,730	207,076	5.4
Northwest Territories	1,253,438	51,465	1,304,903	33.9
Canada	3,560,238	291,571	3,851,809	100.0

Of the total land area of 3,560,238 sq. miles, about 48 p.c. is forested, both productive and unproductive, and less than 8 p.c. is classed as occupied farm

land, under crop, in woodland or unimproved. The remainder, amounting to 1,599,542 sq. miles includes urban land, road allowances, grass and brush land and such waste land as open muskeg, swamp and rock, a great part of it located in the Yukon and Northwest Territories.

Climate

The climates of Canada are not unusual for its location but are similar to those in Europe and Asia extending from the Arctic down to the mid-northern hemispheric latitudes. Because Canada is situated in the northern half of the hemisphere, most of the country loses more heat annually than it receives from the sun. The general atmospheric circulation compensates for this and at the same time produces a general movement of air from west to east. Migrant low pressure areas move across the country in this "westerly zone", producing storms and bad weather and in intervals between storms there prevails the fair weather associated with high pressure areas. Although this movement of low and high pressure systems is the most significant climatic control over Canada, the physical geography of the Continent contributes greatly to the climate. On the West Coast, the high mountains limit mild air from the Pacific to the off-shore islands and a narrow band along the coast where average temperatures are above freezing in winter and in summer rarely go above 90 degrees. This is the area of the heaviest rainfall in Canada, with a pronounced fall and winter maximum. Precipitation decreases and temperature ranges increase eastward toward the interior. The prairies to the east of the mountains are dry and have extreme temperatures because, besides being the interior of a large land mass, they are part of a wide north-south corridor open to rapid air flow from either north or south. The region is well known for its bitterly cold, snowy

Temperature and Precipitation Data for Certain Localities in Canada (Long-term average)

Station	Temperature (deg. Fahrenheit)					Precipitation Av. Annual (inches)	Bright Sun- shine (hrs. per annum)	Freezing Temper- ature (days)
	Av. Annual	Av. January	Av. July	Extreme High Recorded	Extreme Low Recorded			
Gander, Nfld.	39.7	20.8	62.3	96	-17	40.35	1437	190
St. John's, Nfld.	41.8	26.1	61.1	93	-21	53.18	1432	179
Charlottetown, P.E.I.	43.1	20.5	66.8	98	-23	42.74	1821	154
Halifax, N.S.	45.4	26.0	65.3	99	-21	54.39	1873	134
Sydney, N.S.	43.2	24.3	64.9	98	-25	51.37	1796	162
Saint John, N.B.	42.5	20.8	62.2	93	-22	50.13	1904	148
Sept-Îles, Que.	34.0	7.1	59.6	90	-46	42.39	..	210
Montreal, Que.	44.5	16.3	70.8	97	-29	41.19	1852	143
Port Arthur-Fort William, Ont.	36.6	7.2	63.5	104	-42	29.40	..	208
Toronto, Ont.	47.7	25.0	71.5	105	-27	30.56	2026	123
Churchill, Man.	19.1	-17.5	53.6	91	-49	15.99	1732	255
Winnipeg, Man.	36.5	0.1	68.3	108	-54	20.35	2177	194
Regina, Sask.	35.9	1.6	66.7	110	-56	15.53	2266	214
Edmonton, Alta.	35.5	4.5	61.6	95	-46	18.48	2203	196
Fort Nelson, B.C.	30.0	-8.4	62.2	98	-61	17.13	..	216
Victoria, B.C.	50.2	39.4	60.1	95	6	27.41	2216	20
Aklavik, N.W.T.	15.6	-19.9	56.5	93	-62	8.81	1907	261
Frobisher Bay, N.W.T.	15.9	-15.7	46.2	76	-49	14.99	1353	273
Whitehorse, Y.T.	30.8	- 0.6	57.5	91	-62	10.05	1898	219

blizzards in winter, for its contrasting chinook winds which in some areas bring temperature rises of 40 to 50 degrees within a few hours, and for its clear cool summer weather with 60 to 70 degree temperatures. In the settled farmlands of the southern portion, precipitation averages from 12 to 20 inches and is heavier in summer than in winter. The large water surfaces of Eastern Canada produce considerable modification to the climate. In southwestern Ontario winters are milder with more snow and in summer the lakes have a definite cooling effect. Precipitation averages between 30 and 40 inches a year. In the Atlantic Coast area the temperatures are modified and conditions more humid when the winds blow inland from the ocean. Both rain and snow are somewhat heavier here. The area north of the treeline, including the Arctic Islands, is under an arctic climate. Summer as it is known south of this area does not occur; temperatures in July range from 40 to 60 degrees and in January from -34 degrees to zero but often drop much lower, to -60 or -70 degrees. Winds are strong in winter and snowfall relatively light.

Newfoundland

Newfoundland, by reason of its topography, its location and its history, has an economy and a mode of life rather different from that of most other regions of Canada. It is Canada's newest province, having entered Confederation as recently as 1949, but its story extends back three centuries during which time a proud, independent, freedom-loving people wrung a precarious livelihood from salted and dried cod and timber and developed a vigorous and individual culture in their isolated villages, hidden in the bays and inlets of 6,000 miles of rugged and rocky barren shore. Newfoundlanders still retain these characteristics although, for most of them, the harsh life no longer exists.

The Island of Newfoundland is triangular in shape, each side being about 320 miles long. The surface is barren and rocky with innumerable ponds and swamps and, except on the western coast where there is a ridge of mountains rising to about 2,600 feet, there are no areas of great relief. Almost all of it is heavily forested. The economy of the Island is therefore based on forest, fish and mineral resources — the forests support a thriving pulp and paper industry

This church at Torbay has the simple, uncluttered lines that mark much of Newfoundland's architecture. Torbay, on the extreme east coast, is one of the province's oldest settlements.



— the deeply indented coastline provides many harbours for hundreds of fishing craft, large and small — substantial quantities of lead, zinc and copper are mined in the interior and the major part of Canada's output of fluorspar comes from the Burin Peninsula in the south, augmenting a mineral output that also includes some quantities of asbestos, gypsum and silver. The climate of the Island is marine in character, although the moderating influence of the sea is affected by the cold waters of the Labrador current which sweep along the east and west coasts. Summers are cool and winters relatively mild. The Island in 1966 had a population of 472,239, about 42 p.c. of whom lived on the Avalon Peninsula in the east and on the shores of the bays separating the Peninsula from the Island. Within this area, the metropolitan area of St. John's, the capital city, had a population of 101,161.

The mainland area of Newfoundland, known as the Coast of Labrador, is separated from the Island at the narrowest point by the Strait of Belle Isle. It borders the north Atlantic Coast from the Strait to Ungava Bay, its rounded apex extending inland for 450 miles. This remote region is mostly a barren mosaic of rocks, swamps and lakes with a high ridge along the coastline and the Torngat Mountains in the extreme west. It lies within the Canadian Shield and, except for the mountainous areas, is fairly well forested but its greatest sources of wealth include the tremendous reserves of iron ore that exist close to the Quebec boundary and are now being mined, and the power potential of the great Churchill River, on which one of the largest power projects in the world is in the early stages of construction and will eventually have a capacity of some 4,500,000 kilowatts of electricity. Labrador in 1966 had a population of only 21,157, of whom 5,037 lived in Labrador City in the Wabush iron mining area and 4,215 lived in the town of Happy Valley which is adjacent to Goose Bay airport and whose inhabitants are mainly employees of the United States airbase there and the Department of Transport.

The Maritime Provinces

Canada's Maritime Provinces — Nova Scotia, New Brunswick and Prince Edward Island — are a most colourful region, both in history and in natural beauty. Except in the uniformly populated garden province of Prince Edward Island, the settled regions of the area are along the sea coast or navigable waterways. Urban settlements in Nova Scotia and New Brunswick were established when water transport was the only means of communication, and today much of central and northern New Brunswick, southwestern Nova Scotia and the higher plateaux of Cape Breton is still devoid of population.

Approaching the shores of Prince Edward Island, a scene of unforgettable beauty is unfolded before the eye. The mosaic of terra-cotta soil, gently rolling terrain, narrow green woodlots and garden-like farms all combine to present a picture of tranquillity and contentment.

A moderate climate combines with a fertile soil to make agriculture the Island's principal occupation. Almost 70 p.c. of the land area is cultivated, the farms producing mixed grain crops and specializing in potato-growing. Dairying and stock-raising are also important and the establishment of large freezing plants has encouraged the growing of small fruits and vegetables and provided a new export for the Island. The greatly indented coastline and adjacent



Halifax, Nova Scotia, is justly proud of its harbour which is ice-free and can accommodate the largest vessels afloat. In the foreground is the Angus L. Macdonald bridge. The Halifax dockyard was founded in 1757.

Northumberland Strait are ideal for the Island's fishing industry which embraces the famous Malpeque Bay oysters, lobsters, cod, herring and mackerel. Lacking minerals and appreciable timber resources, the Island's manufacturing industry is largely confined to processing the food products of the farms and the fisheries.

Initially the garden province was colonized by Scottish tenants on landed estates administered until 1873 largely for the benefit of absentee English landlords among whom the Island was divided by the Board of Trade and Plantations in London (1767). Today it is almost entirely under cultivation by the descendants of English, Scottish, Irish and United Empire Loyalist settlers. Indeed, the Canadian Confederation was almost born at the Charlottetown Conference (1864) in the Island's Provincial Building, where the Confederation Chamber today fittingly commemorates the historic occasion.

Prince Edward Island, separated from the mainland by the Northumberland Strait, has an area of 2,184 sq. miles, varies in width from about four to 40 miles and is 140 miles long. It has little relief but does attain an altitude of about 450 feet above sea level. In 1966 its population was 108,535; Charlottetown is the capital.

Across Northumberland Strait lies Nova Scotia, the historic homeland of the Acadians, especially in the Minas Basin, Cobequid Bay and Chignecto Basin areas. But even though distinctively French settlements continue along the Digby-Yarmouth shore and in northwestern and southern Cape Breton,

the English settlement of Nova Scotia began with the founding of Halifax (1749), the final capture of Louisbourg (1758) and the migration of New England colonists to such south shore centres as Yarmouth, Barrington, Port Mouton and Liverpool and lands formerly occupied by the exiled Acadians. Although other early settlers located elsewhere in Nova Scotia, a major development took place with the coming of some 20,000 United Empire Loyalists, at the close of the American Revolution. The influx was so great and the new communities so far removed from the capital at Halifax that a new province called New Brunswick was established in 1784, with major settlements at Saint John and Fredericton — the present capital.

Nova Scotia is a peninsula, 381 miles long and from 50 to 105 miles wide — a 21,425 sq. mile area almost completely surrounded by water — the Bay of Fundy, Atlantic Ocean, the Gulf of St. Lawrence, and the Northumberland Strait. Cape Breton Island, a 3,975 sq. mile region in the northeastern portion of Nova Scotia, is almost bisected from northeast to southwest by the salt water Bras d'Or Lakes and consists of a wooded upland rising in the north to 1,747 feet, the highest point in the province. It is linked to the mainland by the Canso causeway. Most of the mainland is of low relief. Ridges not exceeding an altitude of 1,000 feet run through the centre of the province and the Cobequid Mountains, running east and west to the north of the Bay of Fundy have few rounded remnants rising to 1,000 or 1,100 feet.

Although the climate of Nova Scotia is continental rather than marine, temperatures both in the summer and winter are more moderate than in interior continental areas in the same latitude and the seasons somewhat later. Winters are particularly stormy on the Atlantic Coast and fog is prevalent throughout the year.

Many excellent harbours are found on Nova Scotia's Atlantic Coast. Trawlers and draggers take their supplies of cod and other groundfish to the processing plants. Lobster is the most valuable of Nova Scotia's sea products. Main agricultural areas are found on the protected Bay of Fundy and Northumberland Strait areas. The climate is suitable for dairy, poultry and mixed farming and, in some sections, fruit growing; strawberries and blueberries are the principal small fruits produced. The Annapolis Valley is internationally known for its apple orchards and some 4,000 acres of fertile tidal marshland have been added to this area by dyking to prevent salt-water flooding.

Mineral resources include coal, gypsum and salt. Nova Scotia is a leading producer of coal. The forested area of the province is proportionately very large and most of it is regarded as productive. Leading manufacturing industries are based on these resources although, recently, secondary industries are becoming more diversified. A heavy-water plant was opened in Cape Breton to supply nuclear reactors in Canada and abroad and a second plant is scheduled for completion in 1969.

Just over half the people of Nova Scotia who number 756,039 are classed by the census as urban dwellers. However, since 40 p.c. of the total live in the two large urban areas of Halifax-Dartmouth and Sydney-Glace Bay, the province has the appearance of being mainly rural, with about 46 p.c. of the population living in small towns and villages or on farms. Halifax, the provincial capital is situated on one of the best land-locked harbours in the world.

Fishing is of great economic importance to the Atlantic Provinces and lobster is the most valuable species from the standpoint of income to the fishermen. Lobster pots are a common sight on seaboard wharves.



The Isthmus of Chignecto links Nova Scotia with New Brunswick. New Brunswick is nearly rectangular in shape and has an area of 28,354 sq. miles. The Bay of Chaleur cutting about 100 miles inland on the north, the Gulf of St. Lawrence and Northumberland Strait on the east, the Bay of Fundy on the south and Passamaquoddy Bay on the southwest give the province a very extensive sea coast. It adjoins the United States on the west and the Province of Quebec on the north and northwest.

The surface of New Brunswick is mostly undulating. The great North-western Plateau, 1,000 to 1,500 feet above sea level, is deeply dissected by valleys tributary to the St. John River which crosses the entire province to the Bay of Fundy and the Restigouche River which flows eastward to the Bay of Chaleur. The Central Highlands rise 2,000 feet above sea level; Mount Carleton, 2,690 feet. Many river valleys have deeply trenched the plateau to a depth of 1,000 feet or more below the summit level. In the south an upland area of widely separated fold ridges provides lesser relief. The St. John River valley is the major lowland area. The climate of this province, although typically continental rather than marine, also reflects the moderating influence of the sea. As in Nova Scotia, the seasons are somewhat delayed and temperatures in the interior are more extreme than on the coasts. New Brunswick's interior is heavily forested: in fact 86 p.c. of the total land area is classed as productive forest land and three quarters of the merchantable wood is made up of coniferous species. The St. John River Valley and the northwestern part of the province are the agricultural areas, the former specializing in potato and livestock production and the latter containing fairly large mixed-produce farms. In the northwest and along the coastal fringe, part-time agriculture is often combined with fishing and/or lumbering for a livelihood. Inshore fisheries are of greater importance than offshore. Lobster from Northumberland Strait is the money-maker followed by herring from the Bay of Fundy and cod. Mineral resources include moderate amounts of coal, natural gas and petroleum. Shipments of ore and concentrates containing copper, lead and zinc have been made from base-metal mines in the northern areas. New Brunswick has a population of 616,788 (1966) and its capital is Fredericton.



The population of Quebec has long outgrown the confines of the old walled area. This historic gate is one of two fortified entrances that guarded the city founded by Samuel de Champlain in 1608.

Quebec

Quebec, a province of vivid contrast and historic background, preserves much of the memory of Old France in a New World of vigorous industrial activity and change. Narrow ribbons of settlement, farmlands, villages, towns and sprawling cities in the St. Lawrence Lowlands are in sharp contrast to the rugged hinterlands of the north. Largest of the provinces, it measures 594,860 sq. miles, approximately 15 p.c. of Canada's total land area.

Because of its geographical position, large area and complex physiographic relations, Quebec has a wide variety of climates. In the lower St. Lawrence Valley the frost-free season extends from early May to late September. Summers are warm with hot humid spells and the average temperature in winter is 15 degrees F. Moving northward and westward, winter temperatures become more extreme and the summers generally cooler while in the far north the highlands are bitterly cold in winter and practically summerless.

Physiographically, Quebec has three regions. The Canadian Shield occupies the greater part of the area north of the St. Lawrence. These plateau-like highlands present a rough, broken surface strewn with lakes and varying in height from 1,000 to 3,000 feet above sea level, with a few higher peaks. The height of land is in the north-centre of the province and over its broken southern rim tumble the many rivers tributary to the St. Lawrence. The Appalachian Mountains extend through the area of Quebec south of the St. Lawrence, reaching their greatest width in the Eastern Townships and their greatest heights in the Gaspé Peninsula where the Shickshock Mountains have many summits over 3,500 feet. Smallest region is the St. Lawrence Lowlands, a triangular area bounded by the edge of the Canadian Shield on the northwest, the Great Champlain Fault bordering the Appalachian Highlands to the east and the Adirondack Mountains in the United States to the south. A low, flat region covered by deep clay, it is a fertile agricultural area.

Generations of rural people gained their livelihood from the farms in the Lowlands region and it is here that industry became established and prospered, making Quebec the second largest industrial province of Canada. In 1966, of the 5,780,845 people residing in Quebec, the majority lived in the St. Lawrence Lowlands and the Eastern Townships; 4,525,114 were classed as

urban dwellers. Although now far out-ranked by manufacturing as an employer of labour, agriculture is still a way of life, and the production of animal feed crops, potatoes, market garden produce, fluid milk, cheese, hogs, tobacco and maple products is important to the large consumer market.

The great Canadian Shield area, long considered an inaccessible wasteland, has become the keystone of industry in Quebec. Its vast forest resources have made Quebec Canada's major producer of pulp and paper. Total hydro and thermal power developed at the beginning of 1967 (11,187,000 kw.) was the greatest of any single province in Canada. Eventually the installed capacity on the Manicouagan-Outardes project will reach a total of almost 6,000,000 kw. at nine sites. The availability of large quantities of cheap hydro power has encouraged the development of large industrial plants.

The Shield's mineral potential is well known. Quebec has long been a major producer of copper, gold and zinc. Rapid progress has been made in the development of the huge deposits of hematite and other iron ores on the Quebec-Labrador boundary, and ilmenite, an ore of titanium and iron is found east of Sept-Iles. Quebec is a leading supplier of molybdenum as well. The Appalachian Highlands also contain minerals which are a valuable source of wealth. The Eastern Townships account for 90 p.c. of Canada's large output of asbestos, and copper is mined at Murdochville in the Gaspé Peninsula.

Much of Quebec's great industrial expansion in the past decade and a half is based directly on its resources, although the raw materials for some of its highly developed industries are not indigenous to the province. The textile and clothing industries, the petrochemical industries and the aluminum smelting industry are among these. Quebec's manufacturing output represents about 30 p.c. of the total for Canada.

Montreal, the largest city in Canada, symbolizes the industrial revolution now sweeping Quebec. Founded by Chomedey de Maisonneuve in 1642 at the foot of Mount Royal and once a famed fur centre, Montreal now has a population of 2,436,817. Laced to the shore by many bridges, the Island of Montreal constitutes a major industrial, commercial and financial centre, with extensive harbour installations and unequalled transportation facilities of all kinds. The diversity of Montreal's manufacturers, whether heavy industry, railway and other transport equipment, the products of iron and steel, paper, wood, non-ferrous metals, petroleum, foods and beverages, electrical apparatus, clothing or textiles, is unmatched elsewhere in the provinces. Many other cities and towns of Quebec are characterized by one or more such industries. Among those in the lowlands are Sorel (shipbuilding and ilmenite smelting), Longueuil (aircraft), St. Hyacinthe (textiles), Valleyfield (cottons), Joliette (tobacco), Trois-Rivières (newsprint and textiles); in the Eastern Townships, Sherbrooke, Granby, Magog, Farnham (textile towns), Windsor Mills (pulp and paper) and Thetford Mines (one of the world's major asbestos mining centres).

Quebec City, strategically founded by Champlain (1608) where the river gateway narrows between Cape Diamond and the heights of Lévis, is unique among Canadian cities. Rich in old European atmosphere, it symbolizes the preservation of French Canadian cultural life which is a distinguishing element in the Canadian national character. Here, Champlain, Frontenac, Laval and Montcalm gallantly served New France, and here in this stronghold of the

French Canadian race the Fathers of Confederation fashioned the federal constitution of the Canadian nation over 100 years ago. Quebec, the capital of the province, is also an important industrial centre with a far-reaching commercial hinterland; its major roles are political, religious and intellectual.

Ontario

Ontario, the wealthiest, largest, and most populous of the predominantly English-speaking provinces, is located in the heart of Canada. Its irregularly shaped boundaries extend from the freshwater shoreline of the Great Lakes to the salt waters of Hudson Bay and James Bay to the north and from Quebec to Manitoba.

Geologically, Ontario belongs to two major regions — the rough Canadian Shield in the north and the gentler lowlands of the Great Lakes—St. Lawrence region. Northward from the Great Lakes and westward to the Manitoba boundary are approximately 300,000 sq. miles of typically Canadian Shield terrain — a rugged, rocky plateau, mostly 1,500 feet above sea level, strewn with lakes and muskeg. Railways have crossed this area for more than half a century, but it is only with the recent completion of the Trans-Canada Highway that it has been possible to cross it by motor vehicle. The highest point in Ontario is 2,120 feet, at the northeast corner of Lake Superior. From here the land slopes gently to James and Hudson Bays where a large marginal strip, the Hudson Bay Lowlands, is less than 500 feet above sea level. This northern area bears

Far from the stresses of city life, campers pitch their tent in Rushing River Park, Kenora, Ont.



the brunt of severe winter cold waves moving eastward from the prairies, or southward from the Arctic across Hudson Bay and experiences very cold winters. Summers are warm but short. In the district immediately along the north shores of the Great Lakes and west of the Lakes there are frost-free periods of over 100 days but elsewhere the frost-free season ranges from 40 to 100 days.

The lowlands region, which extends over the whole of the southern peninsula between Lakes Ontario, Erie and Huron, and eastward to the Ottawa River adjoining the lowlands of Quebec, is about one sixth the size of northern Ontario. The southwestern tip of the province extends farther south than any other part of Canada. Peninsular Ontario has a much milder climate than the northern districts and since it lies in one of the major storm tracks of the Continent, wide variations occur in day-to-day weather, especially in winter, however conditions of severe cold or excessive warmth are not prolonged.

This is the most densely populated and highly industrialized region of Canada. The population of the province numbered 6,960,870 in 1966, approximately 35 p.c. of the total population of the country and most of that number lived in the peninsular area. Favourable climatic conditions, fertile soil, ease of travel over relatively unobstructed terrain as well as over the natural transportation routes of the St. Lawrence River and the Great Lakes influenced the settlement of this area. Agriculture is well established and continues to be of major importance to the economy of the province. In fact, with the exception of the great wheat-growing areas of the west, it is the most highly productive agricultural area in the country. Its produce is very diversified and many specialized areas have developed — fruit in the Niagara district, tobacco in the countries adjacent to Lake Erie, commercial vegetables north of Toronto and cattle in the Georgian Bay area. In addition, Ontario has the only commercial soybean acreage in Canada. However, important as agriculture may still be, the early colonial settlements along the waterways and in the interior of this area have grown rapidly and have become highly industrialized. Today the industries of southern Ontario produce almost every product required by the consuming public. The focal point of this great industrial agglomeration is Toronto, the second largest city in Canada and a major manufacturing, financial, commercial and distribution centre. In 1966 the Toronto metropolitan area had a population of 2,158,496 and the nearby metropolitan area of Hamilton, whose basic industry is steel, had a population of 449,116.

Although the northern regions of Ontario are thinly inhabited and support only 14 p.c. of the population, their contribution to the industrial output of the province is large. The Ontario portion of the Canadian Shield has long been a producer of many base metals and accounts for close to 40 p.c. of the total mineral output of Canada. Much of Canada's tremendous production of nickel and about half the copper come from the Sudbury area; gold comes from the Kirkland Lake-Porcupine area and from the Red Lake, Pickle Crow and Little Long Lake areas farther west; iron ore comes from the Steep Rock area west of Lake Superior and the Michipicoten area on the northeastern shore of the Lake. Most of the uranium production now comes from the Blind River area north of Lake Huron and Bancroft, east of Georgian Bay. Cadmium, calcium, cobalt, lead, magnesium, selenium, silver, tellurium, thorium, yttrium and zinc were among the other metals produced in 1966. The lowlands area

of the province produces quantities of industrial minerals such as salt, asbestos and nepheline syenite, and some natural gas and petroleum. The production of structural materials such as cement, sand and gravel, and stone for the building industry has been exceptionally high in recent years.

Ontario's 111,570,000,000 cubic feet of standing timber supports a thriving pulp and paper industry. The province produces close to 30 p.c. of Canada's paper output; lumber and other sawmill products are of lesser importance. Ontario follows Quebec and British Columbia in magnitude of water power resources and is second to Quebec in installed hydro-electric capacity. Canada's first full-scale nuclear power station, the 200,000 kw. Douglas Point Nuclear Power Station was placed in service at the end of 1966. Another nuclear station is under construction at Pickering, one unit of which is expected to begin operations in 1971 and the other in 1972.

One out of every three persons in Canada lives in Ontario and it is the destination of the majority of immigrants. The province has a population of 6,960,870 (1966) and a land area of 412,582 sq. miles. Within its boundaries are two capitals, the provincial capital, Toronto, and the federal capital, Ottawa.

The Prairie Provinces

Westward beyond the Lakehead cities and the northwestern Ontario forests where the edge of the Canadian Shield veers northward and gives way to the marine-sedimentated Great Plains, Canada's three Prairie Provinces — Manitoba, Saskatchewan and Alberta — stretch 1,000 miles to the crest of the Rocky Mountains. Extending from the 49th to the 60th parallel of north latitude, they include about 20 p.c. of the country's total area.

Manitoba is the most easterly of the three provinces although by far the largest part of its 251,000 sq. miles is within the Canadian Shield. A line between its two distinct topographic forms begins close to the southeast border and runs diagonally northwest through Lake Winnipeg to the Saskatchewan border, at a point a little beyond the 55th parallel of latitude. The larger northern area, excepting the lowlands south of Hudson Bay, is typically Shield with heavily glaciated topography and deranged drainage. The southwestern portion is the first and lowest of the three broad step-like formations across the northern portion of the great central plains of the Continent. It has an elevation of from 600 to 700 feet and is floored by deep fertile clay soils left by glacial lakes that once covered the area. It is separated from the Saskatchewan Plain, the second plain formation, along its western boundary by the Manitoba Escarpment, a narrow belt of hilly terrain with elevations of from 1,600 to 2,727 feet.

Manitoba, in common with the other Prairie Provinces, has a continental climate; summers are normally warm and winters long and intensely cold. The temperature range between the warmest and the coldest months runs to about 70 degrees in southern Manitoba. The growing season in the agricultural area to the southwest extends from late May to mid-September, with a frost-free period of about 100 days. In the Duck and Riding Mountains that period is under 100 days and in the extreme north from 60 to 90 days. Manitoba averages 22 inches of rainfall a year in the inter-lake section. This comes during the crop season when it can be of greatest advantage.

Manitoba's economy has been built on its agricultural resources. Nearly 80 p.c. of its population lives in the arable section south of Lake Winnipeg and Lake Manitoba and within 100 miles of the southern boundary of the province. Wheat and other grain crops are more prevalent here than in the other Prairie Provinces. The lowland area also has some mineral deposits and yields moderate amounts of crude petroleum, salt, peat moss and gypsum, but it is the great northern area with its Precambrian rocks that contains most of the mineral wealth of the province. Noteworthy is the production from the large copper-zinc deposits at Flin Flon on the Manitoba-Saskatchewan border, from the nickel-copper deposits at Lynn Lake 150 miles farther north,



The combination of scenic splendour and the existence of hot mineral springs prompted the reservation in 1885-87 of the area now known as Banff National Park in the Alberta Rockies. This was the first of Canada's national parks of which there are now nineteen across the country.

and from the nickel development at Thompson in the central north. Cadmium, cobalt, gold, lead, selenium, silver and tellurium were other metals produced in 1966. Manitoba has the greatest water power potential of the three Prairie Provinces. The southern region is well supplied from hydro installations on the Winnipeg River and the northern resources are being gradually developed. The northern areas also are well forested but much of the productive forest land is remote and forest industries, though important, are not highly developed. In addition, Manitoba has valuable fisheries resources.



Magnificent bison guard the grand staircase of the legislative building in Winnipeg, Man. In the early 19th century bison roamed the prairies from the Rocky Mountains to Western Pennsylvania. Now they are almost extinct, and are protected by the Government.

Winnipeg is the capital and largest city, fourth largest in Canada, having a metropolitan area population of 508,759 in 1966. Its industries have developed around its agricultural resources and its importance as a railway and distribution centre. Manitoba has the most diversified industrial complex of the Prairie Provinces. Some 1,500 plants manufacture a wide range of products. Leading industries include meat packing, oil refineries, dairy factories, metal fabrication and clothing factories. In the north, Churchill at the end of the rail on Hudson Bay is a deepsea port from which wheat is shipped across the Atlantic. Fort Churchill, close by, is perhaps most noted as a military station and a base for Arctic research and has a larger but transient population.

Saskatchewan has an area of 251,700 sq. miles, approximately the same as that of Manitoba. The demarcation line between the lowlands to the south and the Canadian Shield, which crosses into Saskatchewan at about the 55th parallel, continues northwest across the province although it becomes less sharply defined. Thus the southern two thirds is prairie lowlands. The second step of the prairie formation stretches westward from the Manitoba Escarpment at an average altitude of 2,000 feet, its surface covered with deep fertile soil, being exceptionally flat in some areas but elsewhere hummocky with innumerable sloughs. Another great scarp occurs about 200 miles to the west, a continuation of the Missouri Coteau which is well marked south of the border, and west of this extends the highest of the prairie steps with an altitude of from 3,000 to 4,300 feet; in the south the Cypress Hills rise above this level. Cutting across the centre of the lowland area are the great arms of the Saskatchewan River which flow from the Rocky Mountains to Lake Winnipeg.

This prairie lowland is the great grain-producing region of Canada. Its growing season ranges from 80 to 100 days and the average amount of sunshine is particularly high. On the other hand, precipitation amounts to less than 20 inches a year and the area is subject to violent storms, which sometimes constitute hazards to the farmer. Saskatchewan nevertheless produces about two thirds of the wheat grown in the country as well as very substantial quantities of oats and other grains. Mixed farming, with emphasis on live-stock, is more prevalent in the more northerly settled areas.

Approximately half of the net value of production of the province is contributed by agriculture and upon agriculture are based the main manufacturing industries. However, the most important industry in point of value is petroleum refining. The southern plains of this province produce about a quarter of Canada's crude petroleum, moderate amounts of natural gas and large quantities of coal, salt and sodium sulphate, but the greatest mineral wealth in this area comes from one of the world's largest known reserves of potash, at depths of from 2,800 to 3,500 feet under part of southern Saskatchewan. Metal production includes substantial quantities of copper and zinc from the Flin Flon mines straddling the Manitoba-Saskatchewan boundary to the north, which also yield moderate amounts of gold, silver, cadmium, selenium and tellurium. In recent years the most valuable of the province's metals is the uranium taken from the large vein-type deposits on the north shore of Lake Athabasca, close to the Northwest Territories boundary. Saskatchewan also has Canada's only helium plants.

The forests of Saskatchewan are mainly in the northern half of the province and, although they cover an area of 118,000 sq. miles, only 42,000 sq. miles are considered productive. Saskatchewan had a population of 955,344 in 1966. The urban centres, of which Regina and Saskatchewan are the largest, are well dispersed over the prairie lands and serve mainly as distributing centres for their surrounding areas. Metropolitan Regina, the capital, in 1966 had a population of 131,127 and Metropolitan Saskatoon 115,892.

Most of Alberta's 255,285 sq. miles lie in the interior plains region. The southern part is dry, treeless prairie changing toward the north into a zone of poplar interspersed with open prairie and giving way to mixed forests. The boundary of the province follows the 49th parallel as does that of Saskatchewan and Manitoba, but only for a distance of about 180 miles before it strikes northwestward following the ridge of the Rocky Mountains to a point close to the 55th parallel and then turns directly north. From the southern part of the border with Saskatchewan the plain rises gradually from about 2,500 feet above sea level to nearly 4,000 feet as it merges into the foothills of the Rocky Mountains. The foothill area is part of the western Cordilleran Region. The Alberta Rockies have numerous peaks of from 10,000 to 12,294 feet, all of them close to or on the boundary with British Columbia.

In winter the southern half of the province is subject to cold, dry masses of continental polar air, moderated from time to time by the chinook winds. Summers are warm with abundant sunshine but rainfall is meagre, particularly in the southwest, and is extremely variable with periodic droughts. In areas where precipitation is less, large irrigation projects have been developed, taking their water supply from rivers rising in the mountains to the west. There are altogether over half a million acres of irrigated land in Alberta.

Thus, while the prairie wheat-growing belt extends into central Alberta and this province is the second largest producer of wheat in Canada, its agricultural output is quite diversified. Cattle-raising is more important here than elsewhere on the prairies and is highly developed in the Rocky Mountain foothills, in the Cypress Hills area of the southeast and in the northern prairie region. Feed crops, vegetables and root crops are grown in the irrigated areas.

In the northwestern Peace River area the frost-free period is only about 80 days but crops are able to mature because of the long hours of daylight during the growing season.

The prairies of Canada are underlain by fuel-bearing rocks but it is in Alberta that they become particularly productive. Coal has long been mined in many areas but is becoming less important with the development of the huge oil and gas resources of the central interior. Production from these oil and gas fields has changed the economy of this province in the past 20 years and contributed immeasurably to its activity and growth. Agriculture-based products still rank high among its manufactures but the recent emphasis has been on manufactures connected with the oil and gas industries. Industrial chemicals have made striking gains as have structural materials, the latter because of the tremendous construction that has taken place in the province and elsewhere. Alberta's forests also contribute to its manufacturing output. The province has 52,569,000,000 cu. feet of accessible standing timber, almost equal to that of Quebec. The foothills of the Rockies are particularly heavily forested but lumbering is not yet highly developed. Water power resources exist in the northern areas but are somewhat remote and present demand for electric power is supplied mainly by thermal plants.

The population of Alberta, which numbered 1,463,203 in 1966, is concentrated in the central southern portion. The metropolitan areas of Edmonton and Calgary, both situated in the oil- and gas-producing areas, had populations of 401,299 and 330,575, respectively.

British Columbia

Beyond the broad prairies and the crest of the Rockies, traversed by three noted passes — Yellowhead, Kicking Horse and Crowsnest — lies British Columbia, Canada's third largest province. It is a land of spectacular beauty, with an exceedingly diversified topography and landscape; a land convulsed by nature into seven or eight main compartments and countless separated pockets; a land of overpowering mountain ranges, of rushing rivers and deep canyons, of green valleys and broad plateaux; a land of lavish dimensions, beauty and potential wealth.

The Rocky Mountains form a continuous range of high wall-like ridges, cut up by glaciation into sharp peaks, knife-like edges and deep hollows. They average 50 miles wide in the south and 25 miles to the north. Some of the highest peaks and most beautiful scenery on the continent are found in the Canadian Rockies. Many of the peaks rise to 10,000 feet or more; the highest in British Columbia is Mount Robson with an elevation of 12,972 feet.

A sharp topographical break, one of the most remarkable of its kind, known as the Rocky Mountain Trench divides the central and eastern sections. Here are found the headwaters of the Kootenay, Columbia, Fraser, Peace and Liard Rivers. It is about 2,500 feet above sea level and averages from two to ten miles wide for a distance of over 1,000 miles. Westward the character of the land changes considerably. On the whole, relief is lower and broader and the effects of glaciation are not as spectacular. This section consists of several ranges. Between the Cassiar Mountains in the far north and the Skeena Mountains lies the small Stikine plateau and south of the Skeena and

Hazelton Ranges there opens out a wide plateau-like upland which sinks in the central part of the province to the lowlands of the Upper Fraser Basin. Southward the upland is squeezed out between the Columbia and Cascade Mountains. The Columbias are a series of rather blocky massive ranges — the Cariboo, Purcell, Selkirk and Monashee Mountains — with deep troughs between in which lie the Kootenay and Arrow Lakes.

The western section consists of a triple structure made up of the Coast Range, the Inner Passage and an outer island arc. The Coast Range begins in the St. Elias Mountains in the Yukon Territory. Here the loftiest peaks on the continent, with elevations of from 18,000 to 20,000 feet, thrust up out of glistening icefields. The highest peak in British Columbia is Mount Waddington, 13,260 feet. Southward the steep slopes of the coastal mountains are clothed with dense green forests contrasting with the steely blue of the deep fjords that pierce the shoreline. The waterways adjacent to the coast — the Georgia, Queen Charlotte and Hecate Straits — compose the Inner Passage. This is one of the finest natural waterways in the world and provides a relatively sheltered and safe sea route from Vancouver to Alaska. The outer island arc is made up of partially submerged outlying ridges and includes Vancouver Island and the Queen Charlotte group. Vancouver Island has an area of 12,408 sq. miles, its surface rising steeply from a rocky coastline to heights of 7,200 feet. The Queen Charlotte Islands are lower.

British Columbia's climate is as varied as its topography, ranging from near-Mediterranean in the southwestern corner to tundra on the mountain tops. As a result of the prevailing westerly winds and the warm waters of the Pacific, the main climatic characteristics of the coastal area are mild winters, warm but not too hot summers and a small range of temperature. The longest average frost-free season in Canada occurs in these areas. Inland, the weather is increasingly continental toward the east, with greater ranges of temperatures and much less rainfall. In fact, in some of the plateau areas of the interior almost arid conditions occur. The northern half of the province has

Lion's Gate Bridge spans Burrard Inlet, Vancouver, B.C., linking North and West Vancouver with the city proper.



long cold winters and short cool summers with only moderate precipitation.

British Columbia's economy is based primarily on its great forest resources. The mild climate and heavy rainfall of the coast area encourage luxuriant growth, giving this province the greatest amount of accessible standing timber in Canada and making it dominant among the provinces in the production of wood products.

The mineral resources of the province are quite diversified. The south-central area has long been famous for its large base-metal mines from which come the country's major output of zinc and lead as well as quantities of gold, silver, antimony, cadmium, bismuth, tin, indium and tungsten. Base-metal mines also exist in the northwest and iron mines on the east coast of Vancouver Island and across the Strait on the mainland. Gypsum and barite are mined in the south-central interior, asbestos in the northern interior and coal in several areas along the eastern boundary. Natural gas and oil from the Peace River district are shipped by pipeline to Vancouver refineries. Petroleum refining has become the province's third largest industry; it refines mainly crude from Alberta's wells.

The abundant waters of the Pacific provide British Columbia's fishermen with large and valuable harvests. Salmon ranks first followed by herring and halibut. Since three quarters of the annual catch of salmon is canned and herring reaches the market in the form of oil and meal, fish processing is a major industry. Most of the halibut is sent frozen to the United States market.

British Columbia ranks third among the provinces in value of manufacturing production. Its hydro-power potential is the second greatest in Canada and its installed capacity is exceeded only by those of Ontario and Quebec.

Only a small percentage of British Columbia's land area is classed as agricultural. This is in the southern part of Vancouver Island and in the river valleys and plateau areas of the south-central mainland, and although agriculture is not of major significance to the province as a whole, it is of considerable importance in these regions. The Okanagan Valley is world famous for its fruit, and the interior plateaux, especially the Cariboo regions, for beef cattle. Other farming areas produce mixed crops but specialize in small fruits, vegetables and horticultural products. It is in this arable portion that the greater part of British Columbia's population exists. Of its 1,873,674 residents in 1966, 892,286 lived in the Vancouver metropolitan area. Victoria, the capital of the province, is located on the southern tip of the Vancouver Island.

The Northern Territories

About 40 p.c. of Canada's total area lies in its northland beyond the boundary of the provinces and extending through its Arctic Archipelago to the North Pole. This vast region of over 1,500,000 sq. miles is known for administrative purposes as the Yukon and the Northwest Territories. For centuries, while Canadians and their government were building a nation from the Atlantic to the Pacific, the north was left to explorers, fur traders, missionaries at the trading posts and a few thousand nomadic Indians and



The historic fur-trading post at Fort Frances on the Rainy River in northern Ontario has recently been restored. Originally called Saint-Pierre, the fort was founded by Christophe Dufrost de La Jemmeraye, a nephew of Gauthier de La Vérendrye, in 1731. After it passed to the Hudson's Bay Company in 1821, the post was renamed in honour of Sir George Simpson's wife. The town of Fort Frances is now a lumbering and milling centre.

Eskimos. Then with two world wars came a growing awareness of the Canadian North as the aerial crossroads of the world. And today, in a period of unprecedented Canadian industrial expansion, a new minerally rich north-land has developed.

Improved transportation and communication facilities have solved many of the territories' problems and encouraged increased economic development. In 1965 a new ten-year road-building program in the Yukon and Northwest Territories, with a yearly average expenditure of \$10,000,000, was announced — the first phase of a long-range 20-year network program intended to bring all potential areas of resource development in the Territories within 200 miles of the nearest permanent road. This project will reduce the North's dependence on seasonal transportation for bulk shipments, and permit substantial growth of the tourist industry. Recently, the Department of Indian Affairs and Northern Development awarded a contract for topographic mapping, aerial reconnaissance and soils interpretation work over a road alignment area 230 miles long in the Yukon and Northwest Territories. The prime objective is to determine the best route for the Dempster Highway, the completion of which will permit road travel to the Arctic Ocean from any point in Canada or the United States. Meanwhile, in 1967, a plaque was unveiled at Yellowknife to commemorate the work of the bush pilots who were invaluable in opening up the North. These pioneers made aerial surveys, airmail flights, provided passenger service, scouted for forest fires, carried out rescue searches, and ferried the sick to hospital.

The Yukon Territory, north and slightly west of British Columbia, is a triangular area of plateaux and mountain ranges cut off from the Pacific by the Coast and the St. Elias Mountains, bounded on the northeast by the Northwest Territories and on the west by Alaska. Numerous river valleys slice through its rugged terrain. Its only seacoast is a 100-mile stretch along the Arctic Ocean west of the Mackenzie River delta and its highest points are in the southwestern corner where many peaks of the St. Elias Mountains reach

heights of over 10,000 feet. Mount Logan, the highest in Canada, has an elevation of 19,850 feet.

The whole region is north of latitude 60 degrees and part is beyond the Arctic Circle. In winter, even in the south, the days are short with no effective sunshine but in summer long hours of daylight promote rapid growth where the soil is suitable. Although the area is subject to wide variations in temperature, winters are remarkably mild and periods of intense cold are short.

The major production of this area comes from its mines in the west-central region — gold in the Dawson area and silver, lead, zinc and cadmium in the Mayo district. Some coal was mined in 1966. Construction of the Alaska Highway across the southern part of the Territory and its later northward extension provided a transport route through the central region linked with distribution centres in British Columbia and Alberta. Approximately 1,300 miles of roads have been constructed. There are extensive water power resources on the Yukon River and several small installations are of particular importance in the development of the mining area. The population of the Yukon numbered 14,382 in 1966. Whitehorse is the capital.

The Northwest Territories, which include all Canadian territory north of the 60th parallel of latitude, excepting the Yukon Territory and the north-western tip of Quebec, occupy a 1,304,903 sq. mile area. This vast region which is more than one third of the total area of Canada, is one of contrast and extremes in topographical characteristics, flora and fauna, and climate. East of the mountain range along the Yukon Territory boundary, the mainland portion consists of plains, high in the west and sloping gently to Hudson Bay on the east and the Arctic Archipelago on the northeast. In the Archipelago, a high mountain range lies in a general north-south direction across Baffin, Devon and Ellesmere Islands with peaks rising about 9,000 feet. The northern limit of tree growth follows a line running from the mouth of the Mackenzie River diagonally southeast to Hudson Bay in northern Manitoba so that the whole northeastern portion of the mainland is treeless tundra studded with countless lakes, swamps and muskeg with no major drainage system.

Only the southern part of the Mackenzie District lies outside the permafrost area and here summers are about three months long with temperatures over 50 degrees F. Throughout the Mackenzie basin the frost-free period varies from 50 to 100 days. Soil and climatic conditions in some areas are suitable to agricultural pursuits but very light precipitation places a check on such operations. Much arable land along a 200-mile stretch of the Liard River has added almost a million acres to the total arable land of Canada. This land is best suited for livestock farming with some feed production, although garden crops may also be grown.

North of the treeline, freezing temperatures may occur during any month of the year and the mainland winters are long and bitterly cold. Climates of the Archipelago are moderated by the sea so that the extremes are not as severe as they would be in a continental area of the same latitude. Temperatures are generally below zero for six months or more but occasional mild periods occur during the winter, particularly in the western Arctic. Summers are short and cool throughout. The Arctic Archipelago is one of the driest regions in the world.



Canada's Centennial was marked in hundreds of ways throughout the land by municipalities large and small. Many lasting projects such as the cultural and sports centre at Drummondville, Que., and the Japanese garden at Lethbridge, Alta., remain not only as reminders of that great occasion but to be used and enjoyed by the local people for years to come.



The area is considered to have great mineral potential and 1966 production included cadmium, copper, gold, lead, silver, zinc, natural gas and crude petroleum.

The furs and fisheries resources of the territory are the mainstay of the native populations and are exploited commercially to some extent. Great Slave Lake yields a fair amount of whitefish and lake trout which is sent south in fresh form. Furs produced in 1966 were valued at more than \$1,500,000.

In 1966 only 28,738 people lived in this vast area. Yellowknife, a gold-mining community on the north shore of Great Slave Lake, was named capital of the Northwest Territories on Jan. 18, 1967.

History

Although 1867 loomed large on Canada's horizon in 1967, it was only one of the many milestones in the country's modern history. As for Canada's early story, it is still largely unrecorded. No one knows yet who actually discovered what is now Canada, or when. Long after Indians and Eskimos had settled the continent Icelanders discovered it and for centuries traded with

As part of Canada's Centennial celebrations, teams of climbers ascended 13 previously unnamed and unscaled peaks of the St. Elias Mountains—henceforth known as the Centennial Range—in the Yukon. In addition, a joint Canadian-American team climbed a mountain on the Yukon-Alaska frontier to commemorate the American purchase of Alaska from Russia in 1867 and Canada's Confederation. The expedition was organized by the Alpine Club of Canada and the Arctic Institute of North America, with financial assistance from the provinces, the Centennial Commission and the National Advisory Council on Fitness and Amateur Sport.



Baffin Island and Labrador. In 1497 John Cabot claimed the land for the English Crown; in 1534 Jacques Cartier planted the flag of France on a Gaspé promontory. Exploitation of the fisheries and the fur trade led to intense rivalry between these two imperial powers, paving the way for the conflict which culminated in the Treaty of Paris in 1763. This agreement gave the British all Upper and Lower Canada except for two Gulf islands, St. Pierre and Miquelon.

Subsequent decades were marked by immigration, the extension of frontier settlements, two conflicts with the United States, and struggles for responsible government. It was, as well, an age of canal and railway building. Then, in 1864, came meetings in Charlottetown, Prince Edward Island, and in Quebec City, to discuss the suggestion of a federation of provinces.

On July 1, 1867, "one Dominion under the name of Canada" was formed. The genius of Sir John A. Macdonald and Sir George-Etienne Cartier, leaders of the English and French factions, held the new nation together and other provinces gradually joined: Manitoba in 1870; British Columbia, 1871; Prince Edward Island, 1873; Saskatchewan and Alberta, 1905; Newfoundland, 1949.

A world war was in progress in 1917 when Canada normally would have celebrated its first half-century. Therefore it remained for the centenary of Confederation in 1967 to fully release the patriotic emotions of a people and to celebrate in song and story the country's hundredth birthday. All ten provinces and two territories joined in the happy excitement of centennial celebrations. Adding "frosting" to the centennial cake was Expo 67, held in Montreal for six months, an unprecedentedly successful world exhibition that attracted millions of visitors.

Many of the projects undertaken by individuals, communities and provinces to mark the centennial were permanent and will be reminders to Canadians of 1967 — the gala centennial year.

Nomenclature

Canada has a rich heritage of place-names. They reflect achievement, adventure, romance and tragedy. Arctic explorers are commemorated in such names as Hudson Bay, Davis Strait and Bylot Island. The Mackenzie River perpetuates the name of Alexander Mackenzie who ventured some 1,500 miles down the then unmapped river; the Thompson River was named by Simon Fraser after his friend, David Thompson, the explorer and surveyor who journeyed to the Pacific Coast but never saw the river that bears his name. Come-by-Chance and Heart's Content are reminders of Newfoundland's propensity for individuality in nomenclature.

Ile Vanier and Ile Pauline in the Queen Elizabeth Islands are well-merited and popular tributes to esteemed personages. Qu'Appelle (Who calls?) recalls the legend of the beautiful Indian maiden who disappeared on a lake as she paddled to meet her lover and whose spirit is said still to haunt the area. Inhabitants of Pile of Bones (buffalo) Creek, gladly adopted the more regal name, Regina, in honour of Queen Victoria. Four provinces — Quebec, Ontario, Manitoba and Saskatchewan — and four capitals — Quebec, Toronto, Ottawa and Winnipeg — reflect Canada's Indian heritage.

No doubt some of the names that find their way onto present-day maps of Canada have equally interesting histories. These new designations, a few thousand of which appear every year, are published periodically in "Supplements" to the *Gazetteer of Canada*. The term "new" is somewhat misleading in that it can designate either a place-name newly adopted or a name that has been in use for years but is merely becoming a matter of official record.

The Geographic Board of Canada established all official names and spellings until 1961 when it was succeeded by the Canadian Permanent Committee on Geographical Names, a committee composed of representatives of the federal mapping agencies and federal agencies concerned with nomenclature, and a representative appointed by each province.

The Permanent Committee, in close association with provincial representatives, deals with all questions of geographical nomenclature affecting Canada, and undertakes research and investigation into the origin and usage of geographical names. Its decisions regarding Canadian nomenclature become official when approved by the provinces. The Minister of Energy, Mines and Resources gives final approval to names for the Northwest Territories and the Yukon. The investigation and recording of geographical names is carried out by the Department of Energy, Mines and Resources. Recently the Committee has investigated about 25,000 names and approved from 2,000 to 2,500 each year. In addition, hundreds of name changes, altered applications and name rescindings have been handled.

New names come to the attention of the Committee in various ways—from specialized maps, newspapers, provincial gazettes, explorers' journals and old reports. In addition, mapping and charting organizations collect new names and sometimes learn of unrecorded local names. Researchers require names to identify features in their reports and post offices or railways seek names for their sites.

The rules laid down by the Permanent Committee are phrased as guiding principles rather than as strict directives to be rigidly observed. Public usage, uniformity and prevention of duplication are the major tenets and clarity and propriety are the basic aims. When public practice conflicts with officialdom, the official name is usually changed to conform with custom and common sense. Some names change because of changing conditions. For instance, Ungava, a district in the Northwest Territories, until it became part of Quebec in 1912, disappeared from modern maps, but the name is perpetuated in the retained name of Ungava Bay and in old charts and documents. Unless there is good reason to the contrary, local usage is the prime consideration in settled areas, and historical significance is emphasized in unpopulated areas.

Names governed by statutory authority. The names of cities, towns, villages, post offices, counties, townships, districts, reserves, parks and other legal divisions as created by, or as a result of, legislation by the appropriate government, are accepted by the Committee.

Uniformity and duplication of names. It is sometimes found that different names are used in the same community for the post office, the town or the railway station. For instance, Owendale is the name of the post office at Jefferson, Alberta, and Brazeau is the name of the railway station at Nordegg.



Saskatchewan's Gardiner Dam, the largest rolled earth dam in Canada, and Diefenbaker Lake, the 140-mile long reservoir formed by the dam, were officially dedicated in mid-1967. They were named to commemorate the services of the late James G. Gardiner, a former federal Minister of Agriculture, and former Prime Minister John G. Diefenbaker. The then Prime Minister, Lester B. Pearson, took part in the ceremonies.

Although this cannot always be avoided, an effort is made to eliminate such practices when a new name is being considered.

If duplication of names of major features might cause confusion, it is avoided at least within a province. For minor features in a settled area the limit need not be beyond the area of smaller administrative units such as a parish, county or municipality. It is not unusual to find a dozen or more designations such as Mud Lake within the confines of a single province. Railway or resource development companies are advised to seek the advice of the Committee concerning the use of geographical names connected with their operations. The propriety of a name, including duplication, is thereby covered.

Personal names. Only in exceptional circumstances are personal names adopted during the lifetime of an individual but recently thousands of features in Canada have been named for Canadian casualties of World War II and the

Committee has approved the naming of features for Sir Winston Churchill, President John F. Kennedy, General William Booth, and Superintendent Henry A. Larsen, R.C.M.P.

English and French names. The adoption of both an English and a French name for the same feature is avoided except where both forms have the sanction of well-established usage. This applies generally to major features; minor features are expected to be given names in one language only. Examples of dual names are: St. Lawrence River and Fleuve Saint-Laurent; Great Slave Lake and Grand Lac des Esclaves; Lake Superior and Lac Supérieur.

Indian and Eskimo names. Indian names for which there are no accepted forms are recorded according to a recognized local orthography or according to the considered opinion of a recognized linguistic or ethnographic authority. Eskimo names for which there are no accepted forms are recorded according to a recognized national orthography.

Form and character of names. Names are expected to be concise, euphonious and in good taste. The apostrophe in the English possessive form, long and difficult Indian and Eskimo names, corrupted or modified names, or names derogatory from the point of view of race, colour or creed are avoided.

Many early explorers named features with which they were not entirely familiar. The result has been such misnomers as Davis Strait and Exeter Sound. It is too late now to change these to more accurate descriptions, for history and custom make such amendments unpopular.

In conformity with these governing regulations, many changes have taken place in nomenclature during the past four or five years. Some names were rescinded, many were altered, and a host of "new" designations were accepted. Historic Louisburg — town, harbour and settlement — reverted to its original spelling, Louisbourg. Such individualistic names as Opeongo Knob, Rooster Reef and Whirligig Lake, Ontario; Ink Pots, Alberta; Dzikowicz Lake, Saskatchewan; Daddy Good Mountain, New Brunswick; Why-Nee-Yulik Point and Per Ardua Glacier, Northwest Territories; Veeocee Mountain, British Columbia; and Wee-Too Beach, Saskatchewan, and many others, became official designations.

The shortest place-names to appear were Z Lake, the former Cranberry Lakes in Nova Scotia, and D Lake, a new name. The name of the post office at Radium Hot Springs, British Columbia, was applied to a location two miles southwest of the former site. Maria-Chapdelaine became the name of a lake in Quebec; The Grand Banks of Newfoundland became an official composite name; Porthill, Prince Edward Island, became Port Hill; and Ha Ha, a lake in Quebec, added two exclamation points to become Ha! Ha! In Labrador, Churchill Falls replaced the former Grand Falls when Churchill River replaced Hamilton River. Augustine Cove, Prince Edward Island, had an "e" added to Augustin; Nova Scotia rescinded two of its designations, Sunnyside, as did British Columbia for a landing named Killiney.

Thousands of unnamed areas of Canada still await the dicta of toponymists. Perhaps achievement, adventure and romance may be the decisive factors in providing regions with permanent designations; perhaps it will be legend, honour to a local dignitary, or approval of an historic or native designation.



Population

A total of 13,011,948 persons or 65 p.c. of all Canadians live in urban centres having populations of 5,000 and over, including the metropolitan areas of larger cities, according to the 1966 Census. In 1961, a total of 11,245,165 or 62 p.c. lived in centres of this size. The 1966 Census shows that there are 325 or 19 more cities, towns and villages with over 5,000 population than five years earlier at the 1961 Census, when there were 306 centres of this size. A total of 40 cities had a population of 50,000 or more in 1966; in 1961 there were 29.

For many purposes population counts on the basis of metropolitan area boundaries, that is, the central city plus surrounding fringe municipalities, are more meaningful than those based on the incorporated legal limits of the central cities. Fully 48 p.c. of Canada's population now live within the boundaries of the 19 centres defined for census purposes as metropolitan areas, compared with 46 p.c. in 1961. During this five-year period, 73 p.c. of the metropolitan growth occurred in the suburban areas outside the main central cities.

The 1966 Census indicates that the growth of metropolitan areas is continuing at a high rate compared with the rest of Canada. For example, the total population of the 19 census metropolitan areas (including both the city proper and suburban parts) increased by 15 p.c. in the 1961-66 period compared with 5 p.c. for the remainder of Canada. These 19 areas accounted for 71 p.c. or 1,260,253 of the 1,776,633 gain in Canada's population during this five-year period.

Continued population gains in urban areas at the expense of rural areas are shown in the 1966 Census. Of Canada's total population in 1966, 73.6 p.c. lived in urban areas compared with 69.6 p.c. in 1961, while 26.4 p.c. lived in rural areas compared with 30.4 p.c. in 1961. All cities, towns and villages of 1,000 and over, whether incorporated or not, are classed as urban, as well as the urbanized fringes of cities of 10,000 population or over. The remainder of

the population is classed as rural. This rural segment is further subdivided into persons living on census-farms and those of the rural non-farm population. A census-farm is defined as an agricultural holding of one or more acres with annual sales of agricultural products of \$50 or more.

Population of Major Metropolitan Areas,¹1956, 1961 and 1966

Metropolitan Area ²	1956	1961	1966
Calgary.....	201,022	279,062	330,575
Edmonton.....	254,800	337,568	401,299
Hamilton.....	338,294	395,189	449,116
London.....	154,453	181,283	207,396
Montreal.....	1,746,069	2,110,679	2,436,817
Ottawa.....	345,469	429,761	494,535
Quebec.....	311,604	357,568	413,397
Regina.....	89,881	112,176	131,127
Saskatoon.....	73,015	95,564	115,892
Toronto.....	1,502,343	1,824,589	2,158,496
Vancouver.....	665,017	790,165	892,286
Windsor.....	185,865	193,365	211,697
Winnipeg.....	412,532	476,543	508,759

¹With 100,000 population or over in the city proper at the 1966 Census.

²Area as of 1966 Census.

Between 1961 and 1966 there was a decrease of 249,736 or 4.5 p.c. in the rural population. Most of this decline (64 p.c.) occurred in the rural farm segment which decreased by 159,000. In the 1961-66 period the urban population increased by more than 2,000,000 persons or 16 p.c. More than half of this gain occurred in the largest urban group (500,000) which increased from 4,605,000 to 5,871,000.

There was a wide variation in the degree of urbanization among the provinces in 1966. The urban percentage for each province in 1966 with the 1961 figures in brackets was as follows: Newfoundland 54.1 (50.7 in 1961); Prince Edward Island 36.6 (32.4); Nova Scotia 58.1 (54.3); New Brunswick 50.6 (46.5); Quebec 78.3 (74.3); Ontario 80.4 (77.3); Manitoba 67.1 (63.9); Saskatchewan 49.0 (43.0); Alberta 68.8 (63.3); British Columbia 75.3 (72.6).

Rural and Urban Population, Canada and Provinces, 1966

Province or Territory	Total Population	Rural	Urban ¹
Canada.....	20,014,880	5,288,121	14,726,759
Newfoundland.....	493,396	226,707	266,689
Prince Edward Island.....	108,535	68,788	39,747
Nova Scotia.....	756,039	317,132	438,907
New Brunswick.....	616,788	304,563	312,225
Quebec.....	5,780,845	1,255,731	4,525,114
Ontario.....	6,960,870	1,367,430	5,593,440
Manitoba.....	963,066	317,018	646,048
Saskatchewan.....	955,344	487,017	468,327
Alberta.....	1,463,203	455,796	1,007,407
British Columbia.....	1,873,674	463,181	1,410,493
Yukon.....	14,382	7,554	6,828
Northwest Territories.....	28,738	17,204	11,534

¹Includes persons living in centres of 1,000 and over.



In 1966, 6,591,757 persons, or 32.9 p.c. of the total population, were under 15 years of age. Persons in the age groups 15-64 totalled 11,883,575, or 59.4 p.c., and those in the older ages, 65 and over, numbered 1,539,548 or 7.7 p.c. The increase of children under 15 years of age in the 1961-66 period was 399,835 or 6.5 p.c., down considerably from the 1956-61 period when it was 966,712 or 18.5 p.c. In the 1961-66 period the 15-64 age group increased by 11.5 p.c. and the 65 and over group by 10.7 p.c.

As in the 1956 and 1961 Censuses, the highest relative percentage of children at the younger age levels was reported in Newfoundland, where 40.3 p.c. of the population of the province was under 15 years at the 1966 Census. Canada's most westerly province, British Columbia, showed 30.6 p.c., or the smallest percentage in this age group. Quebec had 60.3 p.c. or the highest percentage of population of all provinces in the 15-64 age group, with Ontario next highest at 60.2 p.c.; Newfoundland recorded 53.7 p.c., the lowest in this age group with Prince Edward Island at 54.6 p.c. the next lowest. Prince Edward Island recorded 10.8 p.c., the highest percentage of population in the 65 and over age group, followed by British Columbia with the next highest at 9.5 p.c.; Newfoundland reported 5.9 p.c., the lowest in this age group, with Quebec at 6.1 p.c. the next lowest.

Numerical and Percentage Distribution of Population by Age Groups, 1956, 1961, 1966

Age Group	Numerical Distribution			Percentage Distribution			Percentage Increase 1956-66
	1956	1961	1966	1956	1961	1966	
Total	16,080,791	18,238,247	20,014,880	100.0	100.0	100.0	24.5
0-4	1,983,563	2,256,401	2,197,387	12.3	12.4	11.0	10.8
5-9	1,807,053	2,079,522	2,300,857	11.2	11.4	11.5	27.3
10-14	1,434,594	1,855,999	2,093,513	8.9	10.2	10.5	45.9
15-19	1,162,301	1,432,559	1,837,725	7.2	7.9	9.2	58.1
20-24	1,129,110	1,183,646	1,461,298	7.0	6.5	7.3	29.4
25-34	2,414,422	2,481,107	2,483,491	15.0	13.6	12.4	2.9
35-44	2,139,784	2,389,885	2,543,172	13.3	13.1	12.7	18.9
45-54	1,611,865	1,878,504	2,078,179	10.0	10.3	10.4	28.9
55-64	1,154,161	1,289,470	1,479,710	7.2	7.1	7.4	28.2
65-69	464,113	487,102	531,709	2.9	2.7	2.7	14.6
70+	779,825	904,052	1,007,839	4.8	5.0	5.0	29.2



Elements in Population Growth, Canada and Provinces, 1961-66

Province or Territory	Population 1961	Births	Deaths	Natural Increase
Canada	18,238,247	2,248,762	730,869	1,517,893
Newfoundland	457,853	75,251	15,674	59,577
Prince Edward Island	104,629	13,577	5,071	8,506
Nova Scotia	737,007	91,138	31,612	59,526
New Brunswick	597,936	76,943	23,714	53,229
Quebec	5,259,211	646,621	188,904	457,717
Ontario	6,236,092	752,511	264,659	487,852
Manitoba	921,686	108,858	38,518	70,340
Saskatchewan	925,181	112,249	36,558	75,691
Alberta	1,331,944	181,753	47,146	134,607
British Columbia	1,629,082	181,467	77,364	104,103
Yukon and Northwest Territories	37,626	8,394	1,649	6,745
		Immigration	Actual Increase	Net Migration
Canada	538,554	1,776,633	+258,740	20,014,880
Newfoundland	2,256	35,543	— 24,034	493,396
Prince Edward Island	466	3,906	— 4,600	108,535
Nova Scotia	6,241	19,032	— 40,494	756,039
New Brunswick	4,460	18,852	— 34,377	616,788
Quebec	122,897	521,634	+ 63,917	5,780,845
Ontario	287,054	724,778	+236,926	6,960,870
Manitoba	15,433	41,380	— 28,960	963,066
Saskatchewan	8,987	30,163	— 45,528	955,344
Alberta	29,394	131,259	— 3,348	1,463,203
British Columbia	60,822	244,592	+140,489	1,873,674
Yukon and Northwest Territories	544	5,494	— 1,251	43,120

The number of families in Canada on June 1, 1966 was 4,526,266, an increase of 378,822 or 9.1 p.c. over 1961. The average size of family was 3.9, the same as in 1961. Family size was largest in the Atlantic Provinces at 4.3 and in Quebec at 4.2 persons, and was smallest in British Columbia at 3.6 persons.

About 26 p.c. of all families in the Atlantic Provinces and Quebec had no children at home, compared with 33 p.c. in British Columbia. In contrast, in the former provinces about 13 p.c. of the families had five or more children at home compared with only 6 p.c. in both British Columbia and Ontario; the Prairie Provinces had 8 p.c.

Canada's single population 15 years of age and over increased by 18 p.c. in the 1961-66 period compared with gains of less than 8 p.c. in 1956-61 and 5 p.c. in 1951-56. The marked increase in the single adult population is mainly the result of a substantially larger number of persons in the young adult ages who were born in the high birth rate postwar period. In contrast, the married population increased by 8.7 p.c. between 1961 and 1966 as compared with a gain of 12.3 p.c. in the previous 1956-61 period. The combined widowed and divorced population increased by 12.5 p.c. in 1961-66 as compared with 11.1 p.c. between 1956 and 1961.

Population 15 Years and Over by Marital Status, 1956, 1961, 1966

Marital Status	Numerical Distribution			Percentage Distribution			Percentage Increase
	1956	1961	1966	1956	1961	1966	1961-66
Population 15 and over.	10,855,581	12,046,325	13,423,123	100.0	100.0	100.0	11.4
Single 15 and over..	2,960,929	3,191,206	3,764,833	27.3	26.5	28.0	18.0
Married	7,146,673	8,024,304	8,723,217	65.8	66.6	65.0	8.7
Widowed	711,211	778,223	870,297	6.6	6.5	6.5	11.8
Divorced	36,768	52,592	64,776	0.3	0.4	0.5	23.2

Provincially, the largest proportion of single people in the adult population lived in the Northwest Territories and Quebec, 33.8 p.c. and 33.1 p.c. respectively; the smallest proportion was in British Columbia, 24.6 p.c. Ontario, with 67.6 p.c. showed the largest percentage of its population 15 years of age and over to be married, while Prince Edward Island showed the smallest at 60.5 p.c.



British Columbia with 8.4 p.c. had proportionally more widowed and divorced persons than other provinces while the smallest proportions were recorded in Yukon and the Northwest Territories, 4.9 p.c. in each, and in Quebec, 5.8 p.c.

Almost 85 p.c. of the Canadian population at the 1961 Census was born in Canada. The foreign-born, numbering 2,844,000, reported a wide variety of countries of birth. Just over 1,500,000 or more than half of these were post-1945 immigrants. Between June 1, 1961 and June 1, 1966 some 538,000 additional immigrants came to Canada.

In the following table the distribution of these recent immigrants by country of birth is compared with the birthplaces of the total foreign-born population in Canada at the 1961 Census.

The percentage of British-born persons among recent immigrants, at 24 p.c., is considerably lower than the 34 p.c. reporting this birthplace among the total foreign-born in Canada at the 1961 Census. The percentage of recent immigrants born in Italy is double the percentage of foreign-born at the last census. Just over half of all immigrants continue to come from continental Europe.

Foreign-born by Country of Birth, 1961 Census and June 1, 1961 to June 1, 1966

Birthplace	1961 Census		Immigrants 1961-66 ¹	
	No.	p.c.	No.	p.c.
Britain	969,715	34.1	129,829	24.1
Other Commonwealth Countries	47,887	1.7	43,918	8.2
United States	283,908	10.0	50,183	9.3
European Countries	1,468,058	51.6	266,692	49.5
Austria	70,192	2.5	3,734	0.7
Belgium	28,253	1.0	3,594	0.7
Czechoslovakia	35,743	1.2	1,338	0.2
Denmark	30,869	1.1	3,574	0.7
Finland	29,467	1.0	2,022	0.4
France	36,103	1.3	14,479	2.7
Germany	189,131	6.6	28,335	5.3
Greece	38,017	1.3	24,395	4.5
Hungary	72,900	2.6	4,572	0.8
Italy	258,071	9.1	98,998	18.4
Netherlands	135,033	4.7	10,147	1.9
Poland	171,467	6.0	11,318	2.1
Republic of Ireland	30,889	1.1	5,052	0.9
U.S.S.R.	186,653	6.6	2,340	0.4
Yugoslavia	50,826	1.8	12,968	2.4
Others	104,444	3.7	39,826	7.4
Asiatic Countries	57,761	2.0	21,976	4.1
China	36,724	1.3	9,241	1.7
Japan	6,797	0.2	933	0.2
Other	14,240	0.5	11,802	2.2
Other Countries	16,934	0.6	25,957	4.8
Total	2,844,263	100.0	538,555	100.0

¹ Figures for the period Jan. 1 to June 1, 1966 are partly estimated. Excludes a few Canadian-born immigrants.



Vital Statistics

Birth rates. With a total of 387,710 births in 1966, Canada's birth rate stood at a record low of 19.4 per 1,000 persons in the population. The previous record low was 20.1 in 1937. Provincial birth rates varied from a low of 17.3 in British Columbia to a high of 28.5 in Newfoundland. The total number of births has been declining since 1959 when there was a record high of 479,275; the birth rate has been decreasing since 1954 when it stood at 28.5. In 1966, 1,054 males were born for every 1,000 female births.

Of the 387,710 infants delivered in 1966 almost one third were the first-born to these mothers and another one fourth the second-born. As might be expected, the proportions of first- and second-born infants have been increasing during the past three years because of the rise in marriages. Similarly the proportion of infants born to younger mothers has also increased. In 1966 over 11 p.c. of all live-born infants were delivered to mothers under 20 years of age, an additional 33 p.c. among 20-24 year old mothers and almost 27 p.c. among 25-29 year olds; seven out of 10 infants born in 1966 were to mothers under 30 years of age. Teenagers have by far the highest fertility rate, with two out of every five married bearing a child.

Excluding Newfoundland, of the total of 373,626 babies born in 1966, 370,630, or 99.2 p.c., were delivered in hospitals. This compares with less than 40 p.c. before World War II and with over 67 p.c. at the end of the war. The provincial percentages ranged from a low of 98.8 to a high of 99.8.

Despite its rapid decline during the past two years, Canada's birth rate in 1966 has been exceeded by only two of the more highly developed countries of the world — Israel and New Zealand. Comparable rates for other countries were as follows: Israel, 25.4; New Zealand, 22.5; Australia, 19.3; United States, 18.5; Britain, 17.9; France, 17.5; Sweden, 15.8; and Japan, 13.7.

Marriages. Marriages in Canada reached a record high of 155,596 in 1966. Previous record highs of 138,135 and 145,519 were attained in 1964 and 1965, respectively. The marriage rate was 7.8, the highest since 1957. Although

marriages have increased since 1961, when there were 128,475 marriages, the number of births have declined since 1959. One-half of the girls were married by the time they were 21.2 years old; for young men, the corresponding age was 23.7 years.

Deaths. In contrast, Canada, with a total of 149,863 deaths in 1966, had one of the lowest crude death rates in the world. The Canadian crude death rate of 7.5 — a record low — compared with certain other countries as follows: Israel, 6.2; Japan, 6.8; Australia, 8.6; New Zealand, 8.9; United States, 9.5; Sweden, 10.0; France, 10.7; and Britain, 11.8.

Births, Marriages and Deaths, 1931-1966

(Newfoundland included from 1949)

Year	Births		Marriages		Deaths		Natural Increase ²	
	Number	Rate ¹	Number	Rate ¹	Number	Rate ¹	Number	Rate ¹
Av. 1931-1935.....	228,712	21.5	68,660	6.5	103,800	9.8	124,791	11.7
Av. 1936-1940.....	229,064	20.5	96,931	8.7	109,764	9.8	119,300	10.7
Av. 1941-1945.....	277,320	23.5	114,091	9.7	115,572	9.8	161,748	13.7
Av. 1946-1950.....	355,748	27.4	126,898	9.8	120,438	9.3	235,310	18.1
Av. 1951-1955.....	416,334	28.0	128,915	8.7	126,666	8.5	289,668	19.5
Av. 1956-1960.....	469,555	27.6	132,047	7.8	136,669	8.0	332,886	19.6
1961.....	475,700	26.1	128,475	7.0	140,985	7.7	334,715	18.4
1962.....	469,693	25.3	129,381	7.0	143,699	7.7	325,994	17.6
1963.....	465,767	24.6	131,111	6.9	147,367	7.8	318,400	16.8
Av. 1961-1965.....	456,534	24.2	134,524	7.1	145,368	7.7	311,166	16.5
1966.....	387,710	19.4	155,596	7.8	149,863	7.5	237,847	11.9

¹Per thousand population.

²Excess of births over deaths.

Eskimos

About 15,000 Canadian Eskimos live in isolated settlements throughout the Northwest Territories, Arctic Quebec, Labrador and northern Manitoba. The population is growing rapidly and, despite the climate and geography, progress is being made to ensure that all have health care and warm shelter, and that children attend school regularly. The Department of Indian Affairs and Northern Development provides education, welfare, economic development and municipal services in the Northwest Territories and Quebec. Health services are the responsibility of the Department of National Health and Welfare.

Approximately 79 p.c. of the Eskimo school-age population is now enrolled in school. Where possible, children attend school in their home communities up to grade six and go to larger communities for senior grades or vocational education. Residences are provided for pupils at departmental expense when children have to leave home to attend school.

Senior secondary education is available at four high schools in the Territories. Vocational courses are offered at Yellowknife and pre-vocational courses at Churchill, Manitoba. In some cases older boys and girls with little academic training take special courses. Half the day is spent in academic upgrading and the other half in vocational or occupational classes. Altogether, some 3,500 Eskimo pupils are enrolled in school and considerable numbers of them are moving ahead in the senior high school grades. An adult education service helps

One hundred Eskimo children, one for each year of Confederation, were flown south for a two-week holiday in Ottawa in 1967, sponsored by the Centennial Office of the Northwest Territories and the Hillcrest Community Council of the federal capital.



the older generation maintain contact with their children. Much of the emphasis in adult education is on the housing program which is designed to familiarize Canada's Eskimo population with the management and operation of modern housing. A five-year housing program with a budget of \$12,500,000 will provide approximately 1,600 houses for rental to Eskimo families, on the basis of family need and size. The family will pay rent, according to its income, for the house and services, which include heating, electricity, basic furniture and maintenance. Construction on the first units began in 1966 in Baffin Island settlements; in 1967, seven houses were shipped to Baffin Island and the District of Keewatin. The original one-room Eskimo houses will be used for single people or childless couples, as storage warehouses, offices for local housing authorities, or as a shelter at hunting camps.

Eskimo art and crafts have brought world-wide artistic recognition to the people and contribute \$1,000,000 a year to their incomes. The newest form of art is ceramic sculpture, introduced in 1967 by the people of Rankin Inlet. Some highly successful co-operatives are engaged in art and crafts as well as fish production, fur garment manufacturing, logging, lumbering and house construction. The co-operatives stimulate community spirit and contribute a great deal to the economic education of the participants.

However there is need for further economic development in most northern communities. Economic surveys are made regularly by the Industrial Division of the Department of Indian Affairs and Northern Development to pinpoint resources and to suggest methods of development. To provide employment for the growing population, there is an increasing need for the establishment of industry in the Territories and every encouragement and assistance will be given to secondary industry willing to establish in the North. If employment can be provided in this way, as well as through primary industry based on the mineral resources of the North, the Eskimo people, with their innate ability to live in contentment in the Arctic, will be a tremendous asset to the country.

Indians

Organized into 558 Bands, which vary in numbers from fewer than 10 members to more than 7,000, Canada's 224,000 Indian people live on, or have access to, 2,274 reserves or settlements totalling 6,000,000 acres. Both the federal and provincial governments co-operate in a variety of programs designed to help the Indian people become increasingly self-supporting and independent members of their communities. The Resources and Industrial Division, Indian Affairs Branch of the Department of Indian Affairs and Northern Development, is responsible for programming developments in land use, agriculture and ranching, trapping fur-bearing animals, using wild crops, outfitting and guiding tourists, commercial fishing, forestry, small businesses and co-operatives, arts and crafts, mining minerals, oil and gas, and industry.

The Indian Affairs Branch operates an employment and relocation program for Indians in co-operation with the Canada Manpower Centres, maintaining 33 employment and relocation specialists in various centres across Canada. These specialists counsel young Indian candidates on jobs, ensure that they have suitable living accommodation, and maintain liaison with the employee and the employer. They are also responsible for the relocation programs in which families are moved from areas of unemployment to places where permanent employment is available. The employment and relocation program also offers on-the-job training for those who do not have the prerequisite for admission to established schools.

A Community Employment Program is administered by the Branch. Its main objective is to construct community halls, libraries, and Indian Band buildings and to encourage other improvement projects such as fencing and



Willie Dunn, a folk singer from the Restigouche reserve, Quebec, has appeared on CBC television and has toured widely in Canada and the United States.

clearing the land for the construction of houses. As a matter of general policy, funds for these projects are provided in areas where unemployment is most serious. Such projects are reserved for those seasons of the year when it is difficult for reserve residents to secure other employment.

Canada's Indians are becoming more conscious of the importance of education. In 1967, the Indian school population rose to 64,439, an increase of more than 3,000 over that for the previous year and double that of a decade earlier. Over 32,000 or more than 50 p.c. of the total Indian school population attend non-Indian schools. Such attendance is encouraged by the Indian Affairs Branch which has over 200 "joint school" agreements with local boards.

The Community Development Program was launched by the Indian Affairs Branch in 1964 to help the Indian people become more closely involved in the management of their own affairs. Many Bands across the country are developing their own municipal-type administration and 48 community development workers are working with them. To help Bands gain experience and to assist them financially in the administration of their own affairs, the Grants to Band Program was initiated. Its cost rose from \$66,892 in 1965-66 to \$445,300 in 1966-67.

Federal-Provincial Community Development and Welfare Agreements have been signed with Ontario and Alberta to extend provincial services to the Indian people. In other parts of Canada provincial services have also been supplied to Indians through informal arrangements. In general, the terms of agreements and informal arrangements provide that the cost of provincial services will be shared on a population basis where both Indians and non-Indians are involved.

The Citizenship Branch, which is separate and distinct from the Citizenship Registration Branch, promotes effective citizenship practices among Canadians generally by encouraging greater individual participation in the life of the community. Special areas of concern to the Branch at present are: travel and exchange programs, multi-ethnic activities and projects, bilingualism and biculturalism, human rights, immigrant integration, language instruction for adult immigrants, Indian integration and youth services.

Free services are available to organizations, agencies and groups interested in undertaking programs or projects in these fields. They include the provision of information on available resources, educational and program materials, professional advice and assistance on specific programs, projects, conferences, training sessions and meetings. Under agreements with the provinces the Branch shares the costs of teaching and providing textbooks for adult immigrants on language and citizenship.

Information and material relating to the various ethnic groups in Canada, including their history, organizations, activities and contributions to Canadian life is gathered by the Branch and material on the various programs in which it is actively involved as well as information pertaining to the structure and activities of voluntary organizations in Canada is documented.

The headquarters of the Branch consists of the Director, who is responsible to the Under-Secretary of State, and four divisions: Liaison, National Programs, Publications and Information, and Administration. The Branch also maintains 14 field offices in key centres throughout the country.

A Scottish family passes customs inspection at Montreal International Airport.



Immigration

On June 1, 1961, 2,844,263 Canadian residents had been born outside Canada. Between that date and Jan. 1, 1967, an additional 655,165 immigrants entered Canada. The 1966 figure of 194,743 immigrants brought the total number of immigrants since Confederation to more than 9,000,000.

There has been a steady annual increase in immigration since 1961. The 1966 total, up 33.4 p.c. from 1965's total of 146,758 represented the greatest number since the postwar peak in 1957. After the change in regulations in 1962, immigration from countries which once had few citizens eligible for admission to Canada has increased. In 1966 almost every country showed an increase in immigration to Canada.

In 1966 the largest group, representing 33 p.c. of the total number of immigrants, came from Britain and Ireland. Other major sources were Italy, 16.2 p.c. of the total; the United States, 9 p.c.; Germany, 4.8 p.c.; Portugal and France, each 4 p.c.; and Greece, 3.7 p.c. The total 1966 immigration was divided almost equally between persons entering the labour force and dependants and other non-workers. The highest proportion of immigrants, 55 p.c., settled in Ontario, with Quebec receiving 20 p.c., British Columbia 13 p.c., the Prairie Provinces 9.5 p.c., and the Maritimes 2 p.c.

Un-sponsored immigrants selected abroad on the basis of their occupations were assisted in finding employment by specially trained departmental officers.

There was an increase in the number of professionally or technically trained immigrants. The professional and managerial class made up 26.1 p.c. of the workers who arrived in 1966.

An Assisted Passage Loan plan was introduced in 1951 to assist those who might not be able to come to Canada because of financial circumstances. Up to the end of 1966, 232,839 persons had received assistance, and of the \$37,953,559 advanced over those years, \$29,096,487 has been repaid.

On October 1, 1967, new immigration regulations came into effect and principles governing the selection of immigrants were spelled out in detail. An assessment system now permits immigration officers to apply the same standards in the same way to potential immigrants from all areas of the world. The regulations formally confirm that Canadian citizens or permanent residents of Canada are entitled to bring their dependants to Canada; the privilege of citizens or permanent residents in applying for other more distant relatives to come to Canada is extended to all areas of the world and new classes of relatives become eligible for this assistance.

By linking selection standards to conditions within Canada, the new regulations seek to ensure a flow of immigrants more closely related to the economic and manpower requirements of Canada. They make a clear distinction between dependants and relatives entering the working force. There are three categories of immigrants: "sponsored dependants", "nominated (that is, non-dependent) relatives", and "independent applicants" who are neither sponsored nor nominated.



As a centennial project in 1967, some 600 students and staff members received citizenship certificates at a special "Presentations Day" ceremony at Merivale High School, Ottawa.

Sponsored dependants are admitted to Canada provided they are in good health and of good character. Independent applicants have to meet certain standards under an assessment system based on education and training, personal assessment, occupational demand, occupational skill, age, arranged employment, knowledge of English and/or French, relatives in Canada, and employment opportunities in area of destination.

Canadian Immigration offices are maintained in Austria, Belgium, Denmark, Egypt, France, Germany, Greece, Hong Kong, India, Ireland, Israel, Italy, Japan, Netherlands, Portugal, Spain, Sweden, Switzerland, Britain and the United States. The services of immigration officers are available in Australia, Jamaica, Lebanon, Pakistan, the Philippines and Trinidad. In other countries, the Department of External Affairs, through its missions abroad (or through British diplomatic or consular offices) takes care of Canadian immigration interests.

Canadian Citizenship

On January 1, 1947, the Canadian Citizenship Act came into effect replacing previous Naturalization Acts in force in Canada. The Citizenship Act created the distinct nationality of a "Canadian citizen" to be recognized throughout the world and it provided a means whereby non-Canadian British subjects and aliens who were permanently residing in Canada, or those who might subsequently immigrate to Canada, could apply for the grant of Canadian citizenship. The Act provides that all Canadian citizens are recognized as British subjects or Commonwealth citizens. The reverse is not necessarily true. Over the years the Citizenship Act has undergone several amendments, the latest having occurred on July 7, 1967. Since October 1, 1966, the administration of Canadian citizenship has been the responsibility of the Department of the Secretary of State.

Every person born in Canada is a Canadian with the exception of children of foreign diplomats and a restricted class of their employees born after December 31, 1946. Every person born outside of Canada before 1947 of a Canadian father, unless he was born before 1926 and had not come to Canada for permanent residence before 1947, is a Canadian. Every child born outside of Canada since January 1, 1947, to Canadian parents became a Canadian citizen upon the registration of his birth with the Registrar of Canadian Citizenship. All persons who were naturalized in Canada before 1947, all other British subjects who on January 1, 1947 had "Canadian domicile" or who had resided in Canada for a period of twenty years immediately before that date, or every woman who married a Canadian and took up residence in Canada before 1947, acquired Canadian citizenship by operation of law on January 1, 1947.

On April 1, 1949, Newfoundland became the tenth province of Canada and every person born there or naturalized, or every British subject who had domicile in Newfoundland on that date, or every woman who married a citizen of Newfoundland and took up residence there before April 1, 1949, became a Canadian citizen on that date and they acquired the right of conferring Canadian citizenship by descent to their children born outside of Newfoundland, in the same manner as those who had previously become Canadians.

SERDECZNIE WITAMY
W KANADZIE

WILLKOMMEN
IN KANADA

BENVENUTI
IN CANADA



BIENVENUE
AU CANAD

WELKOM
IN CANADA

WNPQ BITAEN
3 KAHADI

WELCOME TO CANADA



At Montreal's International Airport, hostesses of the Department of Manpower and Immigration guide newcomers through immigration formalities.



Newcomers to Canada also find the Manpower Centre Counselling Officer helpful in coping with their problems.

Since Jan. 1, 1947, a non-Canadian British subject or alien who has applied for and has been granted citizenship in Canada is a Canadian citizen.

An adult non-Canadian British subject, or an alien who wishes to become a Canadian, must formally file an application for citizenship. The non-Canadian British subject may file an application direct with the Registrar of Canadian Citizenship, whereas an alien must file an application with a Citizenship Court and after the application has been "posted" for three months, he appears before the Court for examination. In either case the same statutory requirements are applicable: he must reside in Canada for twelve of the eighteen months and for five of the eight years preceding the date of the application and have been lawfully admitted to Canada for permanent residence (persons living in Canada before obtaining "landed immigrant" status may count half of this period of time towards the residence qualification — the wife of a Canadian needs only to be admitted for permanent residence and have lived in Canada for twelve of the eighteen months prior to application); he must be of good character and not under an order of deportation; he has an adequate knowledge of either English or French or, alternatively, he is the spouse, widow or widower of a Canadian or, either he was forty or more years of age at time of lawful admission and has resided in Canada for more than ten years or less than forty at the time of admission and has resided continuously in Canada for more than twenty years; he must have a knowledge of the responsibilities and privileges of citizenship and intends to comply with the Oath of Allegiance and to remain permanently in Canada.

At the conclusion of the Court hearing, the decision of the Court is forwarded to the Minister responsible for the administration of the Canadian Citizenship Act. If the decision is favourable, and a certificate of Canadian citizenship is granted by the Minister, it is forwarded to the Clerk of the Court who informs the applicant of the date and time he is to appear before the Court to take his Oath of Allegiance, renounce his previous nationality, and receive his certificate. When a Court finds that an applicant does not possess the required qualifications to be granted citizenship, the Minister, upon receipt of the decision, will so advise the applicant and give him notice that he may, within thirty days of receipt of this information appeal from such decision to the Citizenship Appeal Court. The Citizenship Appeal Court consists of a judge of the Exchequer Court of Canada.

Prior to amendments of the Canadian Citizenship Act on July 7, 1967, a person (other than a natural-born Canadian) who since becoming a Canadian had resided outside of Canada for ten consecutive years automatically ceased to be a Canadian. This provision for automatic loss has been removed from the Act.

Alien minor children do not automatically become Canadians with their parents. After one of the parents has become a Canadian, the father, as the responsible parent, may apply for citizenship on their behalf and application is made to the Registrar of Canadian Citizenship.

In 1966, Canadian citizenship certificates were granted to 60,847 new Canadians; 59,224 Canadian citizens received certificates or miniature certificates of citizenship as proof of status.

Government and External Relations



Government

Canada is an independent nation with a democratic parliamentary system of government. Queen Elizabeth II, who stands as a symbol of free association among the nations of the Commonwealth is, as Queen of Canada, the Head of the Canadian State. Parliament consists of The Queen, whose functions in Canada are discharged by the Governor General, the Senate and the House of Commons. Senators are appointed on a regional basis with terms running until retirement at the age of 75 years, and members of the House of Commons are elected by the people of Canada for maximum terms of five years. The executive power is exercised by the Cabinet, chosen by the Prime Minister from among his parliamentary supporters. He and his Cabinet colleagues are collectively responsible to the House of Commons and can remain in office only so long as they command the confidence of that House.

The modern Canadian federal state was established by the British North America Act of 1867, which united the three British North American provinces of Canada, New Brunswick and Nova Scotia into one country, divided into four provinces: Ontario, Quebec, New Brunswick and Nova Scotia. British Columbia entered the Union in 1871 and Prince Edward Island in 1873. The provinces of Manitoba (1870), Saskatchewan and Alberta (1905) were created out of portions of the territories formerly held by the Hudson's Bay Company and admitted to the Union in 1870, and Newfoundland entered the Union in 1949. Canada now consists of ten provinces and the remaining northern territories, not included in any province, known as the Yukon Territory and the Northwest Territories.

Although the British North America Act is popularly regarded as the Constitution of Canada, it is not an exhaustive statement of the laws and rules by which Canada is governed. The Constitution of Canada in its broadest sense includes other statutes of Britain's Parliament (e.g., the Statute of Westminster, 1931), statutes of the Parliament of Canada relating to such matters as the succession to the Throne, the demise of the Crown, the Governor General, the Senate, the House of Commons, electoral districts, elections, Royal Style and Titles, and also statutes of provincial legislatures relating to provincial government and provincial legislative assemblies.

The BNA Act divided legislative and executive authority between Canada on the one hand and the several provinces on the other. The Parliament of Canada was assigned authority over control of the Armed Forces, the regulation of trade and commerce, banking, credit, currency and bankruptcy, criminal law, postal services, the fisheries, patents and copyrights, the census and statistics, the raising of money by taxation and, in the field of communication, such matters as navigation and shipping, railways, canals, and telegraphs. In addition, the Federal Government was endowed with a residual authority in matters beyond those specifically assigned to the provincial legislatures, including the power to make laws for the peace, order and good government of Canada.

The provinces, on the other hand, were granted powers extending mainly over such matters of local or private concern as property and civil rights, education, civil law, provincial company charters, municipal government, hospitals, licences, the management and sale of public lands, and direct taxa-

tion within the province for provincial purposes. Judicial authority was not similarly divided, provincial and federal courts having jurisdiction with respect to both federal and provincial laws.

The preservation of both the English and the French languages was safeguarded by the provision that either language might be used in the debates of the Parliament of Canada and of the Legislature of Quebec and in any Federal court in Canada; and that both languages were to be used in the respective records and journals and in the published Acts of the Parliament of Canada and of the Legislature of Quebec.

In their pioneer effort at constitution-making for the federating colonies, the Fathers of Confederation made no provision for amending the British



The Peace Tower rises above the lesser turrets of Canada's Parliament Buildings. It houses one of the earliest carillons in North America below which is the Memorial Chamber, on whose walls are carved the regimental badges of every French, British and Canadian battalion that served in North America.

In the House of Commons, members of the Government sit on the right of the Speaker and members of the Opposition on the left. The press and public galleries are above.



North America Act of 1867. The work of devising an amendment procedure which would safeguard basic provincial and minority rights, has been discussed by both levels of government, in their legislative sessions or in federal-provincial ministerial conferences.

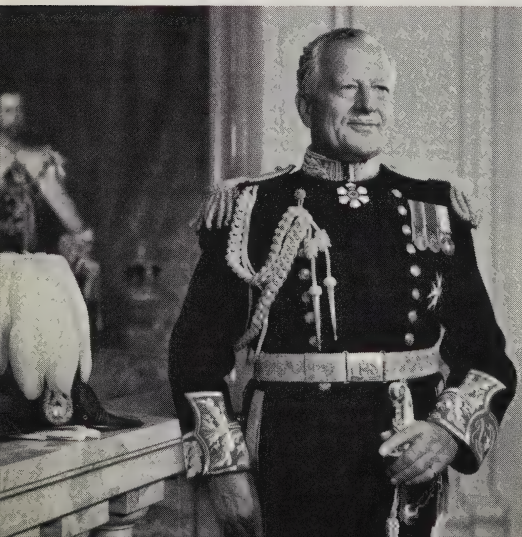
Canada has played a leading part among the British people in the evolutionary development from colonial communities to sovereign nations, united by a common allegiance to the Crown, freely associated as members of the Commonwealth of Nations, and possessing equality of status with Britain in both domestic and foreign affairs.

In addition to the political institutions embraced by the executive and legislative branches, the machinery of government at the federal level includes the non-political public service consisting of employees of the state organized in about two dozen departments of government, a like number of special boards and commissions and about 45 Crown corporations or other agencies. The changing demands on government in this technical age with respect to economic planning, social adjustment and individual welfare have been reflected recently in major re-organizations of these departments and agencies, the establishment of new departments and the transfer of duties from one department to another. At March 31, 1968, federal employees numbered 369,000.

The Parliament of Canada

Federal legislative authority is vested in the Parliament of Canada, consisting of the Queen, the Senate and the House of Commons. Both the House of Commons and the Senate must pass all legislative bills before they receive Royal Assent through the Governor General. Both bodies may originate legislation, but only the House of Commons may introduce bills for the expenditure of public money or the imposition of any tax.

The Queen. Her Majesty Queen Elizabeth II is Queen of Canada. She is also Head of the Commonwealth and symbolizes the association of the member countries. In 1952 it was decided at the Commonwealth Prime Ministers' meeting in London to establish new forms of title for each country. Since 1953 the



The Rt. Hon. Roland Michener, C.C., born in Lacombe, Alta., has been Governor General of Canada since April 17, 1967. Immediately prior to his appointment, Mr. Michener, a Rhodes scholar and a lawyer, was High Commissioner for Canada in India and Ambassador to Nepal.

title of The Queen, so far as Canada is concerned, is “Elizabeth the Second, by the Grace of God of the United Kingdom, Canada and Her other Realms and Territories Queen, Head of the Commonwealth, Defender of the Faith”.

Sovereigns of Canada since Confederation in 1867 are as follows:

<i>Sovereign</i>	<i>Dynasty</i>	<i>Birth</i>	<i>Accession</i>
Victoria.....	House of Hanover.....	1819	June 20, 1837
Edward VII.....	House of Saxe-Coburg and Gotha..	1841	Jan. 22, 1901
George V.....	House of Windsor.....	1865	May 6, 1910
Edward VIII.....	House of Windsor.....	1894	Jan. 20, 1936
George VI.....	House of Windsor.....	1895	Dec. 11, 1936
Elizabeth II.....	House of Windsor.....	1926	Feb. 6, 1952

The Governor General. The personal representative of The Queen in Canada is the Governor General, appointed by the sovereign on the advice of her Canadian Prime Minister for a term of approximately five years. He exercises the executive authority of The Queen in relation to the Government of Canada. On the recommendation of his responsible advisers, he summons, prorogues and dissolves Parliament, assents to Bills and exercises other executive functions.

Governors General of Canada since Confederation, with the dates on which they assumed office, are as follows:

The Viscount Monk of Ballytrammon.....	July 1, 1867
The Baron Lisgar of Lisgar and Bailieborough.....	Feb. 2, 1869
The Earl of Dufferin.....	June 25, 1872
The Marquis of Lorne.....	Nov. 25, 1878
The Marquis of Lansdowne.....	Oct. 23, 1883
The Baron Stanley of Preston.....	June 11, 1888
The Earl of Aberdeen.....	Sept. 18, 1893
The Earl of Minto.....	Nov. 12, 1898
The Earl Grey.....	Dec. 10, 1904
Field Marshal H. R. H. The Duke of Connaught.....	Oct. 13, 1911
The Duke of Devonshire.....	Nov. 11, 1916
General The Baron Byng of Vimy.....	Aug. 11, 1921
The Viscount Willingdon of Ratton.....	Oct. 2, 1926
The Earl of Bessborough.....	Apr. 4, 1931
The Baron Tweedsmuir of Elsfield.....	Nov. 2, 1935
Major General The Earl of Athlone.....	June 21, 1940
Field Marshal The Viscount Alexander of Tunis.....	Apr. 12, 1946
The Right Honourable Vincent Massey.....	Feb. 28, 1952
General The Right Honourable Georges P. Vanier.....	Sept. 15, 1959
The Right Honourable Roland Michener.....	Apr. 17, 1967

The Privy Council. The Queen’s Privy Council for Canada is composed of members appointed for life by the Governor General on the advice of the Prime Minister; in 1968 members numbered 125. The Council consists chiefly of present and former Ministers of the Crown, but occasionally membership is conferred on a distinguished visitor. H.R.H. The Duke of Windsor, Earl Alexander of Tunis and H.R.H. The Prince Philip, Duke of Edinburgh are all members of Canada’s Privy Council. The Council does not meet as a functioning body and its constitutional responsibilities as adviser to the Crown are performed exclusively by the Ministers who constitute the Cabinet of the day.

The House of Commons. Members of the House of Commons are chosen in a general election usually held subsequent to the normal dissolution of Parliament by the Governor General on the advice of the Prime Minister, at any time up to the end of five years after the last election. Occasionally a

general election may be called subsequent to a grant of dissolution following defeat of a government measure, or passage of a vote of want of confidence by the House in the government of the day.

Electors include all Canadian citizens or British subjects, male or female, of the age of 21 or over, who have been resident in Canada for 12 months prior to polling day, with certain exceptions, such as persons confined in penal institutions or mental hospitals, federally appointed judges and returning officers for electoral districts.

Seats in the House are distributed geographically; following the General Election of June 25, 1968, the distribution was as follows:

Newfoundland.....	7	Saskatchewan.....	13
Prince Edward Island.....	4	Alberta.....	19
Nova Scotia.....	11	British Columbia.....	23
New Brunswick.....	10	Yukon Territory.....	1
Quebec.....	74	Northwest Territories.....	1
Ontario.....	88		
Manitoba.....	13	Total.....	264

The current Parliament of Canada, the 28th since Confederation in 1867, was elected on June 25, 1968. Party standing in the House of Commons when Parliament opened, with the party leaders' names in brackets, was as follows: Liberals, 155 (Rt. Hon. Pierre Elliott Trudeau); Progressive Conservatives, 72 (Hon. Robert L. Stanfield); New Democratic Party, 22 (T. C. Douglas); Ralliement créditiste, 14 (Réal Caouette); Independent, 1. There is one woman member.

The Cabinet. The leader of the party winning the majority of seats in the general election is called upon by the Governor General, as representative of The Queen, to form a government. He becomes the Prime Minister and generally chooses party colleagues from among the elected members to form the Cabinet. If he wishes to have in his Cabinet someone who is not a member of the House of Commons, that person must secure a seat in the House within a short time through a by-election or receive appointment to the Senate by the Governor General upon the nomination of the Prime Minister. Most Cabinet Ministers are also heads of departments of the government for the work of which they are responsible to the House of Commons.

The Cabinet is responsible for determining all important policies of government and securing the passage of such legislation, financial measures and administrative provisions as their supporters may approve. The Ministers of the Crown, as the members of the Cabinet are called, are chosen generally to represent all regions of the country and its principal cultural, religious and social interests.

The members of the Ministry, as of July 1968, are listed below according to precedence:

Rt. Hon. Pierre Elliott Trudeau.....	Prime Minister
Hon. Paul Joseph Martin.....	Minister without Portfolio and Leader of the Government in the Senate
Hon. Paul Theodore Hellyer.....	Minister of Transport
Hon. Mitchell Sharp.....	Secretary of State for External Affairs
Hon. George James McIlraith.....	Solicitor General of Canada
Hon. Arthur Laing.....	Minister of Public Works
Hon. Allan Joseph MacEachen.....	Minister of Manpower and Immigration
Hon. Charles Mills Drury.....	President of the Treasury Board
Hon. Edgar John Benson.....	Minister of Finance and Receiver General of Canada

Hon. Léo-Alphonse Joseph Cadieux	Minister of National Defence
Hon. Jean-Luc Pepin	Minister of Industry and Minister of Trade and Commerce
Hon. Jean Marchand	Minister of Forestry and Rural Development
Hon. John James Greene	Minister of Energy, Mines and Resources
Hon. Joseph Julien Jean-Pierre Côté	Minister of National Revenue
Hon. John Napier Turner	Minister of Justice and Attorney General of Canada
Hon. Joseph Jacques Jean Chrétien	Minister of Indian Affairs and Northern Development
Hon. Bryce S. Mackasey	Minister of Labour
Hon. Donald S. Macdonald	President of the Queen's Privy Council for Canada
Hon. John C. Munro	Minister of National Health and Welfare
Hon. Gérard Pelletier	Secretary of State of Canada
Hon. Jack Davis	Minister of Fisheries
Hon. H. A. Olson	Minister of Agriculture
Hon. Jean-Eudes Dubé	Minister of Veterans Affairs
Hon. Ronald Basford	Minister of Consumer and Corporate Affairs
Hon. Donald Jamieson	Minister of Defence Production
Hon. Eric Kierans	Postmaster General
Hon. Robert Andras	Minister without Portfolio
Hon. James Richardson	Minister without Portfolio
Hon. Otto E. Lang	Minister without Portfolio

The Opposition. The choice of the Canadian electorate not only determines who will govern Canada but, by deciding which party receives the second largest number of seats in the House of Commons, it designates which of the major parties becomes the Official Opposition. The function of the Opposition is to offer constructive criticism of the government of the day. In 1905, the importance of the work of the Leader of the Opposition was recognized by the provision of a special salary to be paid to him in addition to his indemnity as a member of the House.

The Senate. The Senate is sometimes referred to as “the sober second thought of Parliament”, in that all legislation originating in the House of Commons must be read three times, debated and passed in the Senate before receiving Royal Assent. Thus, the Senate is not a competitor of the Commons in the field of legislation but, in the main, gives further scrutiny to the legislation initiated in the Commons. Under the Constitution, Bills for appropriating any part of the public revenue or for imposing a tax must originate in the Commons but in every other respect, since both Houses must concur in every piece of legislation, the Senate has an equal voice with the Commons.

The Senate has 102 members appointed by the Governor General on the nomination of the Prime Minister. Senators are chosen to represent the provinces of Canada, as follows:

Ontario	24	Western Provinces	24
Quebec	24	Manitoba	6
Atlantic Provinces	30	British Columbia	6
Nova Scotia	10	Alberta	6
New Brunswick	10	Saskatchewan	6
Prince Edward Island	4		
Newfoundland	6	Total	102

The Yukon Territory and the Northwest Territories at present lack representation in the Senate.

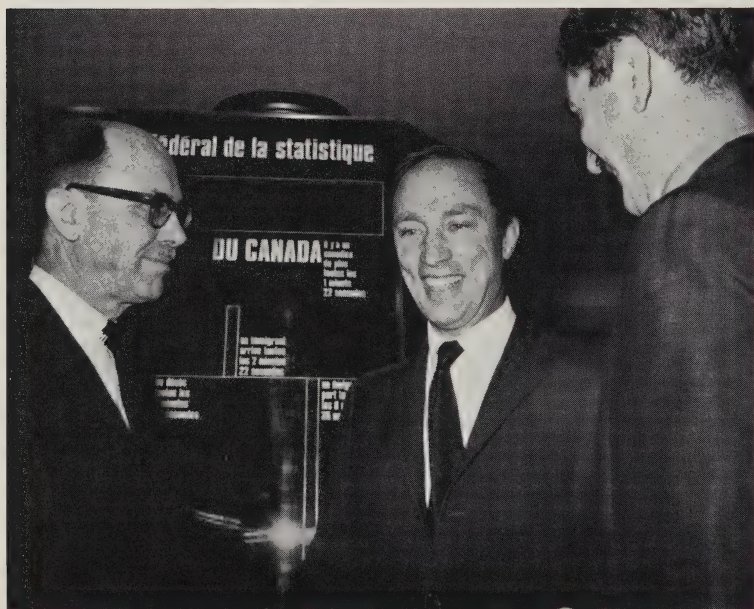
Party standing in the Senate as of July 1968 was as follows: Liberal, 65; Progressive Conservative, 28; Independent, 2; Independent Liberal, 1; vacant, 6.

The Dominion Bureau of Statistics 1918-1968

The Federal Government's central statistical agency, the Dominion Bureau of Statistics, celebrated its 50th anniversary in 1968. However statistical recording has a history as old as Canada's, for the clergy who accompanied the first explorers and settlers kept records of vital statistics. In 1666-67 the Intendant of New France, Jean Talon, made the first systematic census in modern times; he personally carried out much of the door-to-door enumeration. Thirty-six such censuses were taken during the French régime, these records contributing to the knowledge of this historical period. After the cession of the country to the British in 1763, census-taking diminished until the 1840s. But by the time of Confederation in 1867 all the colonies conducted regular decennial census, and in 1871 Dr. J. C. Taché brought together and published the results of all the preceding censuses.

Statistical activity for the remainder of the century was characterized by the development under various titles of a statistical abstract for Canada (the forerunner of the present *Canada Year Book*), by the beginning of the census of western Canada in 1886, and by expansion of statistical activities in addition to the census. Until the turn of the century, however, this expansion took place in the departments of government concerned rather than in a central agency, and included such subject areas as banking and insurance, crime, merchant

Prime Minister Pierre Elliott Trudeau—in the presence of Walter E. Duffett, Dominion Statistician, the Hon. Jean-Luc Pepin, Minister of Industry, Trade and Commerce, and the Bureau staff—switched on the new DBS population clock on July 19, 1968. At that moment Canada's estimated population was 20,789,390. The clock graphically records estimations of the main factors influencing growth—births, deaths, immigration, emigration—and every 82 seconds registers the addition of one person to the population.



shipping, postal services, trade, inland revenue and immigration. The formation of the Department of Labour in 1900 accelerated the development of labour statistics.

Recognition of the need for co-ordinated development was reflected in the passing of the Statistics Act in 1918 and the establishment of the Dominion Bureau of Statistics. In the years that followed, Dr. R. H. Coats, the first Dominion Statistician, laid the foundations for the present statistical system. Purely statistical operations in other federal departments were transferred to the new agency. The new Bureau then turned to the task of filling in gaps in the system and creating a co-ordinated system in areas as basic as vital statistics, external trade and the census of industry. A system of classification of commodities and industries was introduced. Three federal-provincial statistical conferences in 1918 and 1920, on agriculture, education and vital statistics, paved the way for co-operation among levels of government.

By 1939 a broad national statistical system had been established including comprehensive accounts of the balance of payments. World War II brought with it the need for special statistical information in wartime agencies, a great deal of it based on DBS foundations. Following the war, many of these special series were dropped, but the more valuable were retained and transferred to the Bureau. The greatest effect of the war on long-run statistical development was the demonstrated usefulness of a conscious economic policy based on a much more sophisticated conceptual and statistical foundation than had previously been tried in Canada.

During the immediate postwar period the need for basic improvements and innovation in the statistical system was recognized. In this process the national accounts played a central role by providing an integrated framework for improving and extending economic and financial statistics. Another milestone was the development of operational unemployment and employment concepts and their measurement in a regular labour-force survey. Important progress was made in creating and implementing up-to-date classification systems for industries, commodities and so on. Significant progress was made in the field of social statistics including education, health and justice, while the census of population, housing and agriculture was modernized.

During the 1960s, the demand for statistical services has been stimulated by the pressing needs of royal commissions and new government departments and agencies, and by the need for more provincial and regional data. In 1965, the Government formally recognized the Bureau as a separate department of government, and the Dominion Statistician, Walter E. Duffett, as having the rank of deputy minister.

The role of meaningful information, and particularly of statistically-based information is now much more clearly understood than ever before. Businessmen need statistics for comparison of their costs and returns with those of their competitors; labour leaders base wage negotiations on consumer and other price indexes published by the Bureau; federal and provincial governments, municipal planners and a host of others make use of statistical data in economic forecasting and demographic analysis. At the same time the development of new mathematical methods and the invention of the electronic computer have opened vast possibilities for the increased and refined use of statistics.

Provincial Government

Similar political institutions and constitutional usages operate in the government of the ten provinces as in that of the nation as a whole. In each province The Queen is represented by a Lieutenant-Governor appointed by the Governor General in Council, usually for a term of five years. The powers of the Lieutenant-Governor in the provincial sphere are essentially the same as those of the Governor General in the federal sphere.

The Legislature of each of the provinces comprises, in addition to the Lieutenant-Governor, a Legislative Assembly elected for a term of five years and, for Quebec only, a Legislative Council of 24 members appointed for life by the Lieutenant-Governor in Council. The franchise in provincial elections is granted, generally speaking, to every adult 21 years of age or over, although in Quebec and Saskatchewan the age is 18 and in Alberta, British Columbia and Newfoundland, 19. The conventions of Cabinet government operate in the Legislative Assembly of each of the provinces as in the House of Commons at Ottawa. Provincial premiers with party designations as at July 1968 were as follows:

Newfoundland.....	The Hon. J. R. Smallwood.....	Liberal
Prince Edward Island.....	The Hon. Alexander B. Campbell.....	Liberal
Nova Scotia.....	Lt.-Col. The Hon. George I. Smith.....	Progressive Conservative
New Brunswick.....	The Hon. Louis J. Robichaud.....	Liberal
Quebec.....	The Hon. Daniel Johnson.....	Union Nationale
Ontario.....	The Hon. John P. Robarts.....	Progressive Conservative
Manitoba.....	The Hon. Walter Weir.....	Progressive Conservative
Saskatchewan.....	The Hon. W. Ross Thatcher.....	Liberal
Alberta.....	The Hon. E. C. Manning.....	Social Credit
British Columbia.....	The Hon. W. A. C. Bennett.....	Social Credit

Territorial Government

Canada's vast and sparsely populated northern regions, comprising Yukon Territory and the Northwest Territories, have attained both elected representation in the House of Commons and a measure of local self-government. The government of the Yukon Territory consists of a Commissioner and a Territorial Council. The Commissioner is appointed by the Governor-in-Council and administers the government under instructions from that body or the Minister of Indian Affairs and Northern Development. The Council of the Yukon Territory consists of seven members elected for three-year terms of office. The seat of government is Whitehorse.

The Yukon has its own territorial public service. The Northern Administration Branch of the Department of Indian Affairs and Northern Development acts in an advisory capacity on Yukon territorial matters generally. The Department also administers the natural resources other than game.

The Northwest Territories Act (1952) as amended to 1966 provides for the government of the Northwest Territories by a Commissioner (who is responsible to the Federal Government through the Minister of Indian Affairs and Northern Development) and a Council of 12, comprising seven members elected by popular franchise and five appointed members. Legislative powers, analogous to those of a provincial government, are exercised by the Commissioner in Council. By federal Order in Council, Yellowknife was designated the seat of Government for the Northwest Territories, effective as of May 1, 1967.

The Commissioner and the administrative staff of the territorial public service transferred from Ottawa to Yellowknife in September 1967. All sessions of Council are now held in the Northwest Territories.

Local Government

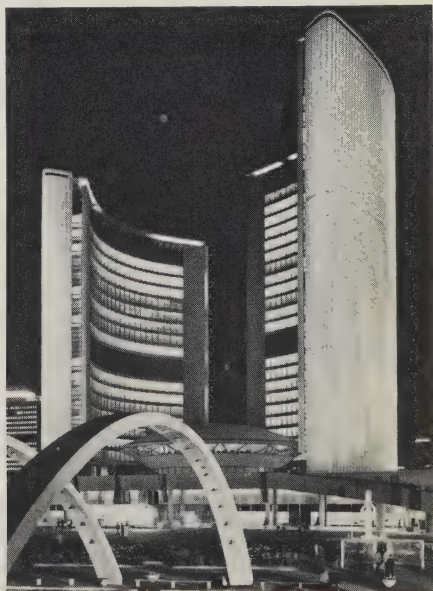
As local government at the municipal level falls under the jurisdiction of the provinces, there are ten distinct systems of municipal government in Canada, as well as many variations within each system. The variations are attributable to differences in historical development and in area and population density of the 4,475 incorporated municipalities. Possessing the power exclusively to make laws respecting municipal institutions, the provincial legislature of each province has divided its territory into varying geographical areas known generally as municipalities and more particularly as counties, cities, towns, villages, townships, rural municipalities, or municipal districts.

Municipalities are incorporated by provincial legislation and have various powers and responsibilities suited to their classification. A municipality is governed by an elected council whose head may be called the mayor, reeve, warden or overseer, and the other citizens who are its members may be known as controllers, aldermen or councillors. The responsibilities of the municipalities are generally those most closely associated with the citizen's everyday life, his well-being and his protection.

The Judiciary

Canadian courts of law are independent bodies. Each province has its police division, county and supreme courts, with right of appeal being available throughout provincial courts and to the federal Supreme Court of Canada. At the federal level there is also the Exchequer Court, in which proceedings instituted by or against the Crown may be launched, and from which appeals may be made to the Supreme Court. All judges, except police magistrates and judges of the courts of probate in Nova Scotia and New Brunswick, are appointed by the Governor General in Council and their salaries, allowances and pensions are fixed and paid by the Parliament of Canada. They cease to hold office on attaining the age of 75 years.

Toronto's new city hall, designed by Finnish architect Revell, epitomizes the cosmopolitan post-war growth of Canada's second largest city, where 2,250,000 people live in its metropolitan area of 250 square miles.

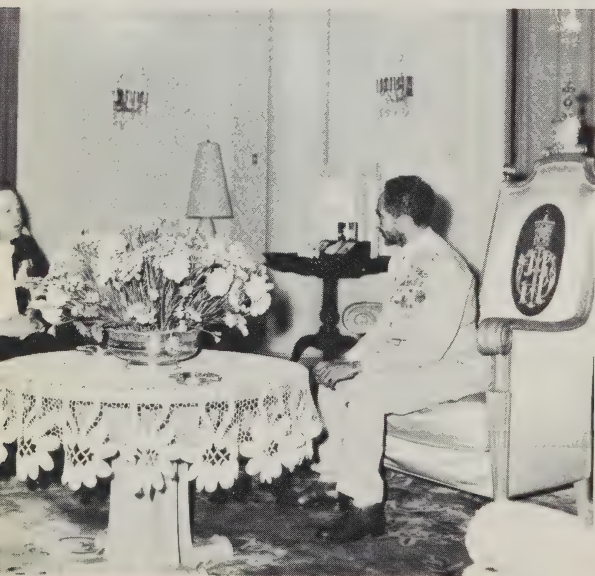


Legislation concerning criminal law and the procedure in criminal matters is under the jurisdiction of the Parliament of Canada. The provinces administer justice within their own boundaries, including the organization of civil and criminal courts and the establishment of procedure in civil matters.

External Relations

Established in 1909 by "An Act to create a Department of External Affairs" (RSC 1952, c. 68), the Department's main function is the protection and advancement of Canadian interests abroad. The Minister responsible for the Department is the Secretary of State for External Affairs. The senior permanent officer (Deputy Minister) of the Department, the Under-Secretary of State for External Affairs, is assisted by a Deputy Under-Secretary and by four Assistant Under-Secretaries and is advised by the officers in charge of the various divisions. Divisional heads are each responsible for a part of the work of the Department and they are assisted by Foreign Service Officers, External Affairs Officers, other administrative officers and an administrative staff. Officers serving abroad are formally designated as High Commissioners, Ambassadors, Ministers, Counsellors, First Secretaries, Second Secretaries, Third Secretaries and Attachés at diplomatic posts; and Consul General, Consuls and Vice-Consuls at consular posts. There are 96 diplomatic, consular, and other missions maintained abroad by the Department. In 40 additional countries, Canada is represented by non-resident Ambassadors or Commissioners.

The work of the Department at Ottawa is performed by 26 divisions and two units. The divisions may be grouped into three categories — area, functional and administrative. There are six area divisions — African and Middle Eastern, Commonwealth, European, Far Eastern, Latin American, and United States; fourteen functional divisions — Communications, Consular, Cultural Affairs, Defence Liaison (1), Defence Liaison (2), Disarmament, Economic, Historical, Information, Legal, Passport, Press and Liaison, Protocol and



Canada's Ambassador to Ethiopia, H.E. Michel Gauvin, converses with His Imperial Majesty Haile Selassie after the presentation of credentials ceremony at Jubilee Palace, Addis Ababa.

United Nations; and six administrative divisions — Administrative Services, Finance, Personnel Operations, Personnel Services, Registry, and Supplies and Properties. The two units are the Inspection Service and the Organization and Methods Unit.

Canada had diplomatic, consular and/or trade representation in the following countries in January 1968. An asterisk denotes non-resident representation. A complete list of names and addresses of Canadian representatives is available from the Queen's Printer, Ottawa.

Algeria*	Guyana	Panama*
Argentina	Haiti	Paraguay*
Australia	Honduras*	Peru
Austria	Hong Kong	Philippines
Barbados*	Hungary	Poland
Belgium	Iceland*	Ponta Delgada (The Azores)
Bolivia*	India	(Visa Office)
Brazil	Indonesia	Portugal
Britain	Iran	Romania*
Bulgaria*	Iraq*	Rwanda*
Burma*	Ireland	Senegal
Cameroon	Israel	Sierra Leone*
Central African Republic*	Italy	Singapore
Ceylon	Ivory Coast*	South Africa
Chad*	Jamaica	Spain
Chile	Japan	Sudan*
Colombia	Jordan	Sweden
Congo (Brazzaville)*	Kenya	Switzerland
Congo (Kinshasa)	Korea*	Syrian Arab Republic*
Costa Rica	Kuwait*	Tanzania
Cuba	Lebanon	Thailand
Cyprus	Lesotho*	Togo*
Czechoslovakia	Luxembourg*	Trinidad and Tobago
Dahomey*	Malagasy Republic*	Tunisia
Denmark	Malaysia	Turkey
Dominican Republic	Malta*	Uganda*
Ecuador	Mexico	Union of Soviet Socialist
El Salvador*	Monaco*	Republics
Ethiopia	Morocco*	United Arab Republic
Finland	Nepal*	United States of America
France	Netherlands	Upper Volta*
Gabon*	New Zealand	Uruguay
Germany	Nicaragua*	Venezuela
Ghana	Niger*	West Indies
Greece	Nigeria	(Associated States)*
Guatemala	Norway	Yugoslavia
Guinea*	Pakistan	Zambia*

Canada is also represented on International Commissions for Supervision and Control in Cambodia, Laos and Viet-Nam; on Permanent Missions to the United Nations in New York and Geneva; the Mission of Canada to the European Communities—The European Economic Community, The European Atomic Energy Community and The European Coal and Steel Community; on the Permanent Delegation to the United Nations Educational, Scientific and Cultural Organization and to the Organization for Economic Co-operation and Development; and on Delegations to the North Atlantic Council and to the Conference of the Eighteen-Nation Committee on Disarmament.



Her Majesty Queen Elizabeth II with her dinner guests, the Prime Ministers and Heads of Delegations attending the latest Commonwealth Prime Ministers' Conference.

The Commonwealth

One of the central elements of Canada's foreign policy is the maintenance and development of a strong Commonwealth of Nations. As at September 1968, the Commonwealth was composed of 28 independent countries—Britain, Canada, Australia, New Zealand, India, Pakistan, Ceylon, Ghana, Malaysia, Nigeria, Cyprus, Sierra Leone, Tanzania, Jamaica, Trinidad and Tobago, Uganda, Kenya, Malawi, Malta, Zambia, Gambia, Singapore, Guyana, Botswana, Lesotho, Barbados, Swaziland and Mauritius.

An interesting recent (1966) Commonwealth development was the negotiation by six Commonwealth Caribbean territories—Antigua, Dominica, St. Kitts-Nevis-Anguilla, Grenada, St. Lucia and St. Vincent—of a new constitutional status in association with Britain. Under the West Indies Act, 1967, each of the West Indies (Associated States) acquired full control over its internal affairs with the right to amend its constitution, including the right to end the association and declare itself independent. Britain continues to be responsible for the defence and external relations of the Associated States but has delegated executive authority regarding certain aspects of their external relations to the respective governments.

A Commonwealth Secretariat was established in 1965 to be at the service of all Commonwealth Governments and to stand as a visible symbol of the spirit of co-operation which animates the Commonwealth. The Secretariat has its headquarters in London and the first Secretary-General appointed by Commonwealth Prime Ministers is Arnold Smith, a Canadian. Members of the Secretariat

staff are widely representative of the Commonwealth as a whole and (in the words of the Prime Ministers' Agreed Memorandum on the establishment of the Secretariat) are expected "to approach their task bearing in mind that the Commonwealth is an association which enables countries in different regions of the world, consisting of a variety of races, and representing a number of interests and points of view to exchange opinions in a friendly, informal and intimate atmosphere". The Secretariat of the former Commonwealth Economic Committee and the Commonwealth Education Liaison Unit, both based in London, have become integrated with the Secretariat.

The Commonwealth Foundation, also established in 1965 and with headquarters in London, is an autonomous body with a Chairman, salaried Director and Board of Trustees (one from each subscribing Commonwealth country) charged with responsibility for administering a fund (financed by governments) for increasing professional interchanges (doctors, lawyers, teachers) throughout the Commonwealth.

A large portion of Canada's overseas economic aid for developing countries continues to be directed to Commonwealth territories through the Colombo Plan, the Canada-Caribbean Aid Program and the Special Commonwealth Africa Aid Program (SCAAP). Other forms of mutual assistance, such as military training and academic fellowships and scholarships, are also provided by Canada on the basis of the Commonwealth relation.

Heir to the great traditions of the French language and culture, Canada is also contributing fully to the establishment of special links with French-speaking countries. Its bilateral relations with France have greatly developed in recent years, through political consultations, parliamentary visits, cultural and scientific exchanges, increased trade, officer exchanges, defence production co-operation, etc. Links with other French-speaking countries have also been strengthened by the establishment of diplomatic missions and developing exchanges in a number of fields. A growing proportion of Canadian economic aid has been directed to francophone countries in Africa. Canada is taking part in current endeavours to develop multilateral co-operation with French-speaking countries. This policy is based on the recognition of the value to Canada of its ties with a vast multi-racial community of some 30 countries, with 150,000,000 inhabitants, linked together by French culture.

NATO

Canada's defence policy, which is an integral part of its foreign policy, is designed to ensure national security and the preservation of world peace through collective arrangements within the United Nations and the North Atlantic Treaty Organization. Canada's main defence commitments are in support of the NATO Alliance. Canada provides substantial forces in NATO, Europe and the Atlantic area and, through its participation in NORAD, contributes forces for the defence of the Canada-United States region of NATO. NATO is much more than a military alliance, and Canada takes an active part in the work and deliberations of the North Atlantic Council which provides the forum where Canada and its NATO partners can exchange full and frank information, opinions and intentions on the political, economic, cultural and scientific developments of today.

As a member of the NATO Alliance, Canada assists its allies by providing military equipment, aircrew training, and logistic support for matériel. Under its Mutual Aid Program, Canada is also a regular contributor to the NATO military budgets and the common infra-structure program.

United Nations

Firm support for the United Nations is an essential element of Canadian foreign policy. Canada has contributed over the years to the efforts of the organization to keep the peace in various parts of the world, including the Middle East, Kashmir, the Congo, West Irian, and Cyprus. In the 1956 Middle East crisis, Canada played a significant role in the establishment of the United Nations Emergency Force and participated in the Force until its withdrawal in 1967. Canada maintains a large contingent in Cyprus (UNFICYP) to assist the United Nations to prevent open fighting between the Greek and Turkish communities. Despite slow progress and occasional setbacks Canada continues to believe that the United Nations has an important role to play in the maintenance of international peace and security.

As a member of the Eighteen-Nation Disarmament Committee, Canada participates directly in the task of negotiating general and complete disarmament under effective international control and seeking agreement on measures to reduce international tension and lessen the possibility of war.

Canada also participates directly in the work of the United Nations through its membership in various United Nations bodies including all of the 13 specialized agencies and the International Atomic Energy Agency. In 1967 Canada completed a three-year term on the Economic and Social Council but continued as a member of most of the important subsidiary bodies of the Council.

Canada also serves on the Governing Council of the United Nations Development Program (UNDP) and the Industrial Development Board of the newly-established United Nations Industrial Development Organization (UNIDO) which replaced the Committee for Industrial Development. Canada participates directly on the Executive Committee of the Office of the United Nations Children's Fund (UNICEF), the Trade and Development Board of the United Nations Conference on Trade and Development (UNCTAD) and the Executive Committee of the Office of the United Nations High Commissioner for Refugees. Canada belongs to 16 subsidiary bodies of the General Assembly including the Committee on the Peaceful Uses of Outer Space, the Disarmament Commission, the Special Committee on Peacekeeping Operations and the United Nations Scientific Committee on the Effects of Atomic Radiation. Canada maintains Permanent Missions at both UN headquarters in New York and at the European Office of the organization in Geneva.

Canada pays 3.17 p.c. of the Organization's regular budget and is the sixth largest contributor. In addition, Canada makes voluntary contributions to special United Nations programs such as the United Nations Development Program (UNDP), the United Nations High Commissioner for Refugees (UNHCR), the United Nations Children's Fund (UNICEF), the United Nations Relief and Works Agency in the Middle East (UNRWA) and the World Food Program (WFP).

Community projects raise money for overseas relief. At a Halifax show staged for that purpose, teenagers join happily with their elders in displaying old-time fashions.



Canada's total assessment and contributions to the United Nations, its Specialized Agencies and related bodies totalled approximately \$380,000,000 during the period 1945 to March 31, 1968 and about \$39,000,000 in 1967-68. Canada was elected to a seat on the Security Council for 1967-68, having previously served in 1947-48 and 1958-59.

Canada and the United States

Canada's relations with the United States are of vital importance both to Canadian growth and development and to Canada's position in the international community. History and geography have made the two countries neighbours and the demographic realities and economic patterns of our day are cementing the friendship which characterizes the relations between the two countries.

Co-operation on bilateral matters and on the international front have marked this unique relationship in the past and experience has demonstrated a willingness on both sides of the common border to maintain and foster the spirit of sympathetic understanding to which the two countries have become accustomed in their dealings with each other.

Canada and the United States are both active members of the United Nations and its many specialized agencies. Both also participate actively in NATO, GATT, OECD, and other important international organizations. There are also many bilateral bodies which facilitate Canada-United States co-operation. The Ministerial Committee on Trade and Economic Affairs annually brings together members of the Cabinet in both countries for extensive discussions on the widest range of problems of both bilateral and international interest. The Permanent Joint Board on Defence and the International Joint Commission are forums for the discussion of North American defence and problems related to boundary waters respectively. In addition there are many joint committees and agencies which deal with particular specialized subjects.

Perhaps the most important factor in re-enforcing the traditional friendship of the two countries is the continual intermingling of private individuals which is permitted by the free flow of people across the shared border.

Canada and Europe

Canada's relations with Europe, which are deeply rooted in Canada's origins, spring from the common cultural heritage which the country shares with Britain and France, and also reflect traditional links with other European countries from which Canada's population is derived. These relations have been strengthened by Canada's substantial participation, on European soil, in two world wars. Canada's relations with Western Europe have since steadily developed, under the impulse of major Canadian political, economic, defence and other interests in the area. Canada maintains close and extensive bilateral relations with Britain and France in particular, as well as with most other West European countries, and has resident diplomatic missions in almost all of them. Traditionally, Britain and, to a lesser extent, several Western European countries have been among Canada's major partners in external trade and have been its chief source of immigrants. In the multilateral field Canada is today, with a number of Western European countries, an active member of NATO and the OECD, and also of wider international associations such as GATT. As a result of its growing prosperity, dynamism and unity, Western Europe will undoubtedly assume increasing importance in Canada's external relations.

In recent years, Canada's relations with the countries of Eastern Europe have developed considerably. The greatest single impetus to these relations was provided by the expansion of trade after the beginning of large-scale Canadian wheat sales to the area after 1963. This has been followed by the growth of exchanges in many fields encouraged by the general relaxation of international tensions in Europe. Canada has resident diplomatic missions in Moscow, Prague, Warsaw and Belgrade and has established diplomatic relations with Hungary, Romania and Bulgaria through non-resident ambassadors.

Canada and the Middle East

Canada has participated actively in the United Nations' efforts to promote calm and stability and to alleviate want in the Middle East. This region has been an area of tension and conflict since World War II. Canadian officers continue to serve with the United Nations Truce Supervision Organization located along Israel's borders with neighbouring Arab States. Canada was closely associated with the formation of the United Nations Emergency Force, and Canadian troops served with UNEF in Gaza and Sinai from its inception until its withdrawal in May 1967. Canada also took part in the United Nations Yemen Observation Mission which was terminated in September 1964.

Another form of Canadian co-operation in the UN activities in the Middle East is the United Nations Relief and Works Agency for Palestine Refugees (UNRWA). Since UNRWA's inception, Canada has traditionally been one of the leading contributors to that agency. Following the conflict of June 1967, the Canadian Government supplemented its contribution to UNRWA by providing substantial amounts in emergency food aid and other forms of assistance to

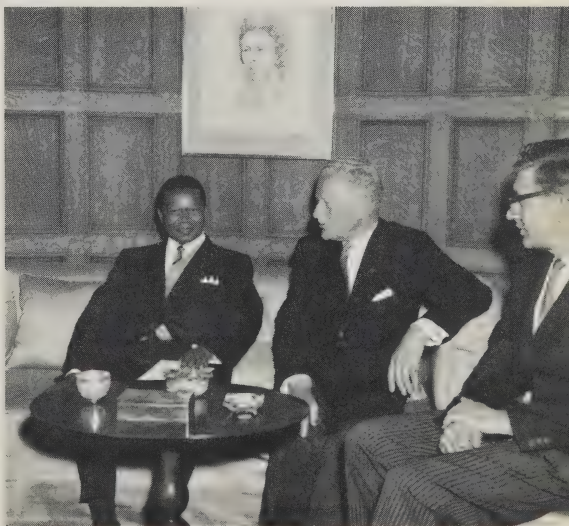
the agency. At that time Canada also contributed generously to the International Red Cross for the provision of emergency supplies to relieve human suffering in the Middle East.

Canada and Africa

Rapid expansion of Canadian diplomatic relations with African countries in recent years reflects the growing Canadian interest in Africa and in the problems of its political and economic development. Canada now has diplomatic missions in 11 African countries and the heads of mission are dually accredited to a number of other countries.

Canada has particular links with Commonwealth African countries and with French-speaking African States. In 1967-68, through the Special Commonwealth African Assistance Plan, the Canadian Government undertook to make available to Commonwealth African countries a total of \$18,500,000 including \$10,500,000 in grant funds, \$6,000,000 for development loan assistance and \$2,000,000 for food aid. In the French-speaking African States allocations for 1967-68 totalled \$12,000,000 including \$8,500,000 in grant funds, \$2,500,000 for development loan assistance and \$1,000,000 for food aid. To date, the greater part of Canadian grant aid has been committed to educational and technical assistance in response to requests for this form of aid from recipient governments. As of Mar. 31, 1967, 450 African students were receiving training in Canadian educational and technical institutions, and 252 Canadian teachers and 120 advisers were serving on assignment in Africa under External Aid Office auspices. Technical assistance has continued to increase substantially in the current fiscal year. A portion of the Canadian contribution to the United Nations Development Program and to other United Nations Funds and Agencies also contributes to African development and Canada provides military training assistance to a few African countries.

Informal discussion follows the presentation of Letters of Credence by the Ambassador of Lesotho to Canada's Governor General.



Canada and Latin America

Canada has formal diplomatic relations with all 20 Latin American Republics and maintains 14 resident diplomatic missions in the area. Relations with these countries have increased appreciably during the past few years in every field.

Canada is a member of three Inter-American organizations linked with the Organization of American States: the Pan-American Institute of Geography and History, the Inter-American Statistical Institute and the Inter-American Radio Office. Since 1931, Canada has been a member of the Postal Union of the Americas and Spain, which, while not an OAS organization, is closely related to that body. Canada joined the United Nations Economic Commission for Latin America in 1961, and has been officially represented at a growing number of meetings and conferences concerned with Latin American and Inter-American affairs.

In December 1964, the Canadian Government signed an agreement with the Inter-American Development Bank under which Canada agreed to make available \$10,000,000 (Cdn.) in development loan funds for use in financing development projects in Latin America. This initial commitment was followed in each of the three succeeding years by additional commitments of an equal amount, bringing the total Canadian development loan funds made available to Latin America to a level of \$40,000,000 (Cdn.).

Although the volume of Canadian trade with Latin America is still small in comparison with total Canadian trade, it has more than trebled since the end of World War II.

External Aid Programs

Canada participates in a number of economic, educational and technical assistance programs abroad. Much of this assistance is extended under bilateral grant aid programs in the form of Canadian goods and services.

In the fiscal year 1966-67 the External Aid Office allocated \$307,000,000 in grant and loan funds to all programs of overseas assistance, \$94,000,000 more than in the previous year. Of this increase, \$75,000,000 were in grant aid funds, given to recipient countries without any repayment obligation; \$12,000,000 were in loan funds, repayable over 10 or 50 year periods at minimal rates of interest; and \$7,000,000 were in commercial credits permitting purchase of capital goods on soft terms from Canada, by private firms and state agencies in developing countries.

During this fiscal period the relationship of grants to loans was generally such that 72 p.c. of bilateral funds was given in the form of grants and 28 p.c. as loans. Multilateral funds were committed equally in the form of grants and loans.

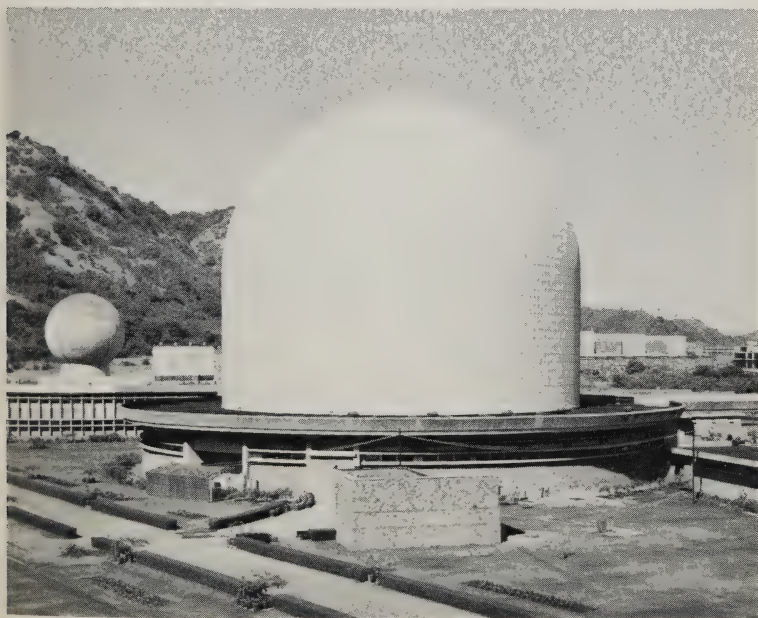
Oldest and largest of the bilateral grant aid programs is the Colombo Plan for Co-operative Economic Development in south and southeast Asia, under which Canada has made available some \$800,000,000 in assistance since 1951. This was mainly to fellow Commonwealth countries of India, Pakistan, Ceylon and Malaysia, with significant amounts of technical assistance being provided

to the French-speaking States of southeast Asia. Canada's contribution to the region in 1966-67 totalled \$148,250,000. Other grant aid for non-Commonwealth countries in Asia was marginally enlarged in 1966-67 to provide more funds to meet the costs of Canadian projects under way in Thailand, Korea and Vietnam, and to provide for allocations to regional development in southeast Asia under Mekong Committee auspices.

Canadian aid has not been limited to south and southeast Asia. New programs have been undertaken in the Commonwealth Caribbean, in Commonwealth Africa and in French-speaking African countries. A special program was also begun in Latin America. In 1958, when the West Indies Federation was being formed, Canada introduced a grant-aid program for that area. Expenditures for the Commonwealth Caribbean comprising the former units of the Federation, as well as for Guyana and British Honduras, increased from \$10,000,000 in 1965-66 to \$13,100,000 in 1966-67. At the July 1966 Commonwealth Caribbean-Canada Conference held in Ottawa, Canada announced its intention to increase its aid to the area to a minimum of \$75,000,000 over the next five years.

With the emergence of independent states in Africa, SCAAP—the Special Commonwealth Africa Aid Program—was launched on Commonwealth initia-

In 1967 the Canada-India Reactor, Trombay, at Bombay, India, was renamed CIRUS. Canada's share of the estimated cost of about \$14,000,000 was over \$9,230,000. Atomic Energy of Canada Limited was responsible for supervising the engineering and erection of this heavy-water moderated, light-water cooled reactor.





As part of the Canada-Caribbean Aid Program, Canada gave the newly independent government of Guyana a DHC-6 Twin Otter aircraft. The chief pilot of Guyana Airways received the log book from the Vice-President of the De Havilland aircraft company.

Over the past few years, Canada has given 35 cinema vans, fitted with portable screens and recording equipment, to 10 African countries under the External Aid Program. They are used mainly for educational purposes.



tive. Canada allocated \$3,500,000 annually beginning in 1961, the main recipients being Nigeria, Ghana, Tanzania, Uganda and Kenya. This program has since been extended with an allocation of \$18,500,000 in 1966-67, \$4,000,000 greater than the previous year.

When SCAAP was being formed, Canada introduced a program of educational assistance to the independent French-speaking States of Africa at an annual level of approximately \$300,000. Beginning in 1964, substantially greater amounts were committed: \$4,000,000 in 1964-65; \$7,500,000 in 1965-66; and \$8,100,000 in 1966-67 — evidence that it is one of the most rapidly growing aspects of Canada's program of external aid.

Canada contributes to the development of Latin America through a program of concessional loans administered in conjunction with the Inter-American Development Bank. This program began in 1964, when \$10,000,000 was allocated to the Bank's resources for economic, technical and educational assistance projects in this area. The following year, a further \$10,000,000 was made available and, during 1966-67, the total allocation for Latin America was raised to \$30,000,000. These funds are used for loans, the proceeds of which go to purchase Canadian goods and services for nations in south and central America who are members of the Bank. Decisions to support projects undertaken by these countries are made by the Bank, after consultation with, and agreement by, Canada.

Capital project assistance, which includes the construction of power stations, transmission lines and industrial plants, the supply of machinery and equipment and the carrying out of surveys and feasibility studies, accounts for nearly half of Canada's aid expenditures. Commodity assistance, or the supply of industrial raw materials and foodstuffs, constitutes only a slightly lower proportion of the total effort. Technical assistance permits individual Canadian teachers or advisers to go abroad and students to come to Canada. These proportions, however, are not similar in individual programs. Commodity assistance, for example, has been concentrated on the more advanced nations of the Colombo Plan. Countries such as India and Pakistan have already achieved a certain degree of industrial development and urgently require foreign raw materials to sustain production from existing industry as well as project assistance for the creation of new industries.

The African countries have not yet reached a similar stage of development and have requested technical assistance, particularly in the field of education, to create a pool of skilled manpower without which industrial development cannot take place. Technical assistance, therefore, has formed a much higher proportion (about 60 p.c.) of the Canadian aid effort in Africa. Capital assistance has been concentrated largely on the construction of schools or the carrying out of basic surveys of resources.

In addition to the bilateral programs described above, Canada contributes to multilateral economic and technical assistance programs of the United Nations and its specialized agencies. Canada also extends loans and advances to other international organizations such as the International Bank for Reconstruction and Development and the International Development Association. Under the Export Credits Insurance Act, Canada can also extend long-term commercial credits for development purposes in the emerging countries.

A Sea King helicopter about to land on the flight deck of HMCS Assiniboine, to which it will be hauled down and fastened by an efficient Canadian-designed winch system. The use of this "Beartrap" system is now being considered by other navies.



National Defence

All matters relating to the control and management of national defence, the Canadian Armed Forces (which were constituted as a single service on February 1, 1968) and the Defence Research Board are the responsibility of the Minister of National Defence as are the duties and functions relating to national survival in civil defence.

Effective August 1, 1964, Headquarters of the Royal Canadian Navy, the Canadian Army and the Royal Canadian Air Force were integrated to form a

single Canadian Forces Headquarters (CFHQ) under one Chief of Defence Staff. The role of the Chief of Defence Staff is to provide military advice to the Minister of National Defence and to control and administer the Canadian Forces through CFHQ.

CFHQ is organized in four functional Branches headed by the Vice Chief of Defence Staff, the Chief of Personnel, the Chief of Technical Services and the Comptroller General, who are responsible for advising and supporting the Chief of Defence Staff in matters relating to their assigned spheres of activity.

The civilian administration of the Department is organized under the Deputy Minister and is constituted on a functional basis. The Deputy Minister, assisted by an Associate Deputy Minister, maintains a continuing review and control over the financial aspects of operational policy, logistics, and personnel and administration. There are three Assistant Deputy Ministers. Each administers a division of the Deputy Minister's branch responsible for personnel, logistics and finance. The Judge Advocate General, the Departmental Secretary and the Director of Information Services also answer to the Deputy Minister.

The Defence Council meets at regular intervals to consider and advise on major policy matters. The Council consists of: the Minister of National Defence as Chairman; the Deputy Minister of National Defence, the Chief of

Members of the Canadian Armed Forces will soon be wearing newly designed uniforms. The insignia will indicate the branch of the Forces—Army, Air Force or Navy—to which the wearer belongs.



Defence Staff, the Chairman of the Defence Research Board, the Vice Chief of Defence Staff as members, and a Secretary. The Associate and Assistant Deputy Ministers, the Branch Chiefs at CFHQ and the Vice Chairman, Defence Research Board, are associate members of Defence Council.

Liaison in Other Countries

The Chief of Defence Staff, who is the Canadian military representative to the North Atlantic Treaty Organization, is responsible for advice on all NATO military matters and acts as a military adviser to Canadian NATO delegations. For purposes of liaison and to further international co-operation in defence, Canada also maintains: (1) the Canadian Defence Liaison Staff London, representing the Canadian Armed Forces in Britain, the Commander



Canadian soldiers of the Battalion, Queen's Own Rifles watch a Norwegian tank as it approaches a position during the multinational NATO exercise Polar Express, held in 1968.

The RCAF's Air Defence Command contributes operationally ready forces for the defence of the North American Continent under NORAD, using CF-101B Voodoo aircraft which are considered to be among the world's most formidable fighters.



of which is the principal military adviser to the Canadian High Commissioner in London; (2) the Canadian Defence Liaison Staff Washington, representing the Canadian Armed Forces in the United States, the Commander of which is the principal military adviser to the Canadian Ambassador in Washington, and the Canadian National Liaison Representative to SACLANT Headquarters; (3) in Brussels, the Canadian member of the NATO Military Committee in Permanent Session; a Military Adviser to the Canadian Permanent Representative to the North Atlantic Council and also a Canadian National Military Representative to SHAPE; and (4) Canadian Forces Attachés in various countries throughout the world. A number of defence matters of concern to both Canada and the United States are considered by the Permanent Joint Board on Defence, which provides advice on such matters to the respective governments.

Command Structure

The Canadian Forces are organized on a functional basis to reflect the major commitments assigned by the Government. Under this concept, all forces devoted to a primary mission are grouped under a single commander who is assigned sufficient resources to discharge his responsibilities. Specifically, the Canadian Forces are formed into nine major organizational entities reporting to the Chief of Defence Staff. These are as follows: Mobile Command (including 4th Canadian Infantry Brigade Group); 1 Air Division; Maritime Command; Air Defence Command; Air Transport Command; Training Command; Matériel Command; the Canadian Forces Communications System (CFCSS); and the Reserves and Survival Organization.

Administration of Military Bases in Canada

Staffs and services required below Command Headquarters level to administer and support units based in a particular locality have been organized into Canadian Forces Bases. The organization on each base is in consonance with the four branch concept in effect at CFHQ and Command HQ. Each Canadian Forces Base has been allocated to the respective functional Command having the greatest scope of interest in the operational role of the units comprising the base.

Defence Research

The Defence Research Board, the agency in the Department of National Defence responsible for scientific research, was created in 1947 by an amendment to the National Defence Act. It provides, through the Chairman, scientific advice to the Minister of National Defence and to the Canadian Forces.

An intra-mural program of research specifically oriented toward military needs is carried out by the research organization which consists of eight research establishments. Liaison offices are maintained in London, Washington and Paris.

The Board conducts an extra-mural research program through grants-in-aid of research to universities and support is also provided to industry with the object of promoting and strengthening the research capability of Canada's defence industry.

National Wealth



Agriculture

Canadian agriculture has experienced considerable technological change in recent years, particularly since the end of World War II. As in most other industries the trend has been towards increased mechanization and specialization. The effects of these renovations are reflected in the revenue derived from agricultural production, although it must be remembered that climatic conditions have always been an important determinant of farm output.

An indication of the technological change that has occurred in Canadian agriculture is the decrease in the number of farms and the corresponding increase in the average size of farm. These changes are tied in with the increased farm mechanization which has enabled the farm operator to operate a larger farm with the same amount of labour or less. Also, the larger farm area reduces per-acre machine costs and is one of the ways by which the farmer can offset the steady increase in the cost of farm machinery.

The declining trend in the number of farms in Canada, first evident in the 1941-51 decade, continued in the intercensal period, 1956-61 and again in the period, 1961-66. A total of 480,903 farms was recorded in the 1961 Census for all Canada, 16.4 p.c. fewer than the corresponding total of 575,015 farms in 1956 and 22.8 p.c. fewer than the 1951 total of 623,091. In 1966 the total dropped 10.5 p.c. to 430,522 census-farms, of which 276,835 were classified as "commercial or farms with \$2,500 or more in sales of agricultural products". There were 259,037 commercial farms reported in 1961.

Part of the reduction in the number of farms between 1956 and 1961 was attributable to a change in farm definition. In the 1951 and 1956 Censuses a farm was defined as a holding on which agricultural operations were carried out and which was three acres or more in size or from one to three acres in size and with agricultural production during the previous year valued at \$250 or more. In 1961 and 1966 a farm was defined as a holding of one acre or more with sales of agricultural products during the past 12 months valued at \$50 or more. Many small holdings, which do not provide farm operators with their main source of income are included in the 1966 total. In fact, 152,910 farms reported sales of farm products of less than \$2,500. Most of these farms are merely rural residences and the owners are employed elsewhere.

Historically, large increases in farm area were recorded from 1911 to 1941, during which period the total rose from 108,968,715 acres to 173,563,282 acres. This increase was attributable mainly to the agricultural development of the Prairie regions; since 1941 the total farm area of the country has changed little. In 1966 it amounted to 174,124,828 acres, a record but only slightly higher than the 1961 area of 172,551,051 acres. In the 1961-66 period all provinces east of Manitoba experienced decreases in total agricultural area but the four western provinces reported increases.

For all of Canada, the percentage increase in improved land (4.6 p.c.) was identical to the percentage decrease in the acreage of unimproved land. The total improved land area increased from 103,403,426 acres in 1961 to 108,154,377 acres in 1966 and the total unimproved land area dropped from 69,147,625 acres to 65,970,451. The increase in improved land reflected larger areas in crops and pasture in 1966 which more than offset a decrease of 9.2 p.c. in the

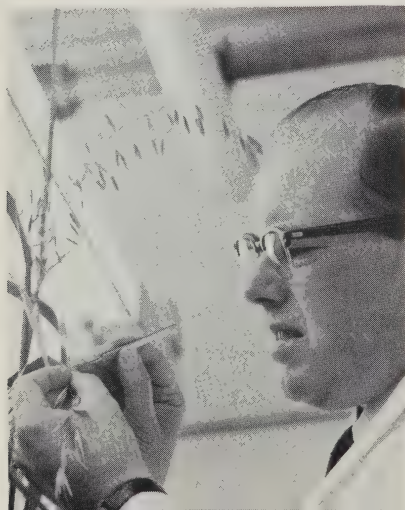
acreage of summerfallow. The drop in unimproved land was accounted for almost entirely by a decrease in the area of woodland.

Almost 53 p.c. of the census-farms of Canada contained fewer than 240 acres in 1966. However, there was a wide variation among the provinces: in the Atlantic Provinces, 77.4 p.c. of the census-farms were under 240 acres in size; in Quebec and Ontario 81.6 p.c. were under 240 acres; in the Prairie Provinces only 19.1 p.c. fell into this category and in British Columbia this proportion was 79.1 p.c. Some of the largest farms in Canada were reported in the Prairie Provinces where in 1966, 11,234 had more than 1,600 acres. In 1961, census-farms of this size numbered 9,120. In all of Canada, 11,881 farms had more than 1,600 acres in 1966 compared with 9,578 in 1961.

The proportion of farm operators owning all or part of their land increased from 93 p.c. in 1951 to 94 p.c. in 1961 to 95 p.c. in 1966. As a result the percentage of census-farms operated entirely on a rented basis decreased. There was also a decrease in the proportion of farm operators in the younger age groups. Those under 35 years of age decreased from 22 p.c. in 1951 to 17 p.c. in 1961 to 15 p.c. in 1966. Conversely, the proportion of operators from 45 to 54 years of age increased from 23 p.c. to 27 p.c. to 28 p.c. and the proportion of those 55 years of age or older rose from 30 p.c. to 32 p.c. to 33 p.c.

Technological changes are reflected in the increasing use of more advanced harvesting equipment. The number of hay balers rose 53.0 p.c. from 89,522 in 1961 to 136,954 in 1966 and the numbers of forage crop harvesters increased 45.1 p.c. from 16,764 to 24,317. The proportion of census-farms reporting electric power increased in all provinces between 1961 and 1966, although, because of the smaller number of census-farms in 1966, there was a decrease in the total number reporting electric power. The largest percentage increase occurred in Newfoundland where the proportion moved from 65.8 p.c. to 84.4 p.c. In all of Canada the increase was from 85.2 p.c. in 1961 to 88.7 p.c. in 1966. This was a sharp rise from the 1951 proportion of 51.3 p.c.

The total capital value of census-farms in Canada increased 44.8 p.c. to \$19,075,320,000 in 1966 from \$13,171,221,700 in 1961. Value of land and buildings



A Department of Agriculture scientist, by crossing wild oats and commercial spring oats, is endeavouring to produce a plant with the usual desirable qualities of oats and, as well, the ability of wild oats to survive frosts and germinate early in spring.

rose by 52.8 p.c. to \$13,173,964,200 from \$8,622,641,300; machinery and equipment, 38.3 p.c. to \$3,552,411,400 from \$2,568,631,500 and livestock and poultry, 18.6 p.c. to \$2,348,945,000 from \$1,979,948,900.

Types of Farming

Types of farming in Canada include dairying, cattle raising, general livestock, poultry raising, grain growing, fruit and vegetable production and specialties, such as tobacco and sugar beet growing. Many farms are combinations of these types.

In the Atlantic Provinces the agricultural land areas are relatively small and, except for Prince Edward Island where the proportion of cultivated land is high, only a small proportion is suitable for cultivation. The area of purely commercial farming in Newfoundland is quite small and chief activities centre around dairying and poultry raising. Crops like cabbage, potatoes and other root crops grow particularly well there. Mixed farming prevails on Prince Edward Island with major emphasis on potatoes, dairy products and hogs.

In Nova Scotia and New Brunswick, a little less than one fifth of the total land area is suitable for agriculture and only about one quarter of the farmlands are improved. There are many part-time farmers with quite small holdings but, in contrast, there are also well-developed large-scale enterprises. In Nova Scotia these large farms specialize in poultry raising and dairying; in New Brunswick, in potato growing.

Agriculture is diversified in the central region — Ontario and Quebec — yet there are also many specialty farms including dairying, poultry raising, tobacco and sugar beet growing, and fruit and vegetable production. Cash crops such as corn, soybeans and white beans are also important sources of income.

The chief characteristic of agriculture in the Prairie Provinces is the emphasis on grain production. Cattle and sheep ranching have long been established in southwestern Saskatchewan, southern Alberta and the foothills of Alberta, and sizable herds of cattle are to be found scattered through the grain-growing areas. Wheat, coarse grains and oilseed crops, however, dominate the production pattern on the majority of farms.

The mountainous topography of British Columbia limits farming to the coastal sections, the valleys and plateau regions of the interior, and the Peace River block in the northeastern part of the province. The mild, maritime climate of the coast and the high concentration of urban population have led to the development of specialized dairy, poultry, small fruit and vegetable farming in this area. In the central interior where the climate is more severe, there are several areas devoted to cattle and sheep ranching. In the Okanagan Valley, situated in the southern interior, fruit production predominates, particularly apple growing. In the Peace River block, agriculture is limited to grain and forage seed production and stock raising.

Farm Production and Income

Canada's 1966 index of farm production of agricultural products was estimated at 182.8 (1949 = 100), 12.8 p.c. above the previous record of 162.0 which occurred in both 1963 and 1965. Much of the increase can be attributed to the record-breaking wheat crop produced in 1966. Production of potatoes, livestock,

and poultry meat was also higher but their contribution to total output was well below that of wheat. Little change occurred in the output of vegetables and dairy products but the production of eggs was down.

A new record high was established for farmers' cash receipts from farming operations. It included cash returns from the sale of farm products, Canadian Wheat Board participation payments on previous years' grain crops, net cash advances on farm-stored grains in Western Canada and deficiency payments made by the Agricultural Stabilization Board. These receipts totalled \$4,232,200,000 in 1966, 11.2 p.c. above the previous record of \$3,805,500,000 set in 1965 and 28.4 p.c. above the average for the five years 1961-65. Returns from nearly all of the items contributing to farmers' cash receipts were up in 1966 but the most significant increases were recorded for wheat and cattle. Offsetting these gains to some extent were reduced cash receipts from the sale of potatoes and smaller total Canadian Wheat Board payments. Increases in total cash receipts occurred in all provinces except Prince Edward Island and New Brunswick where income from potatoes declined significantly due to lower prices.

In addition to the above income, farmers also received supplementary payments amounting to \$41,300,000 in 1966 compared with \$12,800,000 in 1965. These payments included those made under the provisions of the Prairie Farm Assistance Act and other government assistance to farmers who suffered losses as a result of adverse weather conditions.

Although farm sales of agricultural products were substantially higher in 1966 than in previous years, they did not account for the year's total production. Large quantities of grain from the record crop production in the Prairie Provinces were added to year-end farm inventories, and stocks of potatoes and tobacco rose above the previous year's levels. The cattle population was down in 1966, but the numbers of hogs and poultry were higher. Altogether the value of the net addition to farm inventories at the end of 1966 amounted to \$191,200,000 as against \$44,300,000 for the year 1965.

Net Income of Farmers from Farming Operations, 1964-66

Item	1964	1965	1966
	\$'000	\$'000	\$'000
1. Cash receipts	3,490,896	3,805,519	4,232,230
2. Income in kind	396,373	432,016	469,558
3. Supplementary payments	8,477	12,762	41,345
4. Realized gross income (1 + 2 + 3)	3,895,746	4,250,297	4,743,133
5. Operating and depreciation charges	2,519,879	2,729,332	2,956,494
6. Realized net income (4-5)	1,375,867	1,520,965	1,786,639
7. Value of inventory changes	-94,904	44,280	191,236
8. Total gross income (4+7)	3,800,842	4,294,577	4,934,369
9. Total net income (8-5)	1,280,963	1,565,245	1,977,875

Nearly all items considered in the estimates of farm operating expenses were higher in 1966 than in 1965. Feed was the greatest single item; total expense at \$525,500,000 in 1966 was well above the expenditure of \$459,200,000 in



The planted acreages of vegetables sold commercially in Canada increased from 236,100 in 1966 to over 254,000 in 1967. Ontario had over 121,000 and Quebec over 85,000 cultivated acres. The major crops grown for processing are peas, corn, beans and tomatoes. Here lettuce is being transplanted into open fields at Kingsville, Ont.

1965 because of a substantial increase in the use of prepared feeds and higher prices. Costs of operating machinery continued to increase because of increased fuel expenditures and greater outlays for repairs. The growing importance of fertilizer as an item of farm expense is reflected in expansion in outlay; from \$138,800,000 in 1965, this expenditure rose to \$164,100,000 in 1966. There was a marked increase in its use in the Prairie Provinces. Total interest payments on farm indebtedness continued to increase as farmers made greater use of credit sources available to them. The farm labour force declined during 1966 but wages reached new high levels.

Field Crops

Some 85,200,000 acres of improved land — four fifths of all the improved land in Canada — lie within the Prairie Provinces of Manitoba, Saskatchewan and Alberta and it is from this region that a vast outflow of grains and oilseeds originates. Some of the surplus harvest is used in other parts of Canada but much of it is exported.

Wheat is the largest single crop and due to the combined influence of climatic conditions, plant-breeding programs and a most efficient grading system, Canadian high-protein wheat rates special significance in the milling industry throughout the world. However, the semi-arid conditions of the prairie region which make it possible to produce high-quality grains do have drawbacks. These are reflected in the marked year-to-year changes in output. For example, drought was a serious factor in 1961 when only 283,394,000 bu. of wheat were produced. This was followed by more normal growing conditions in 1962 with production at 565,554,000 bu. and in 1966 a record 827,338,000 bu. of wheat were grown. In 1967 conditions were again unfavourable and

production declined to 592,920,000 bu. Such vast changes in production put a severe strain on the grain handling and marketing facilities as well as on farm incomes. Much of Western Canada's farm legislation is designed to alleviate the most serious consequences of such marked instability in output.

In addition, significant changes occur in the pattern of land use as producers attempt to adjust operations in response to market conditions. Wheat acreage which totalled 27,387,000 acres in 1949 declined gradually to a low of 21,560,700 in 1957 but has since risen steadily to more than 30,000,000 acres in 1967.

In some cases year-to-year changes in acreages and yield combine to produce dramatic shifts in output. For example, the acreage seeded to Durum wheat almost doubled between 1960 and 1961 but the average yield per acre was less than half that of the preceding year because of drought and, as a result, output declined. Between 1965 and 1966 the acreage increased by 27 p.c. and yields by 33 p.c. with the result that the total crop increased by about 80 p.c.

In other parts of Canada, field crop output is tied more closely to the livestock economy with considerably more emphasis on hay, pasture and feed grains. However, feed grain production is usually insufficient to meet feeding requirements and considerable quantities are moved from the Prairie Provinces each season to help meet these needs.

Prince Edward Island and New Brunswick devote much of their improved land to potatoes. Surplus potatoes are shipped to other provinces and, depending on market conditions, to the United States and other countries.

The Prairie Provinces are the foremost producers of barley and Canadian production in 1967 was estimated at 248,662,000 bushels. The Canada Department of Agriculture recently concluded tests on the effects of temperature on barley germination.



Oilseed crops, which years ago were mainly confined to flaxseed, now form a significant proportion of the field crop output. Rapeseed, a crop born of wartime necessity, has become firmly established as a valuable cash crop in the northern Prairie Provinces. Canada is now the principal world exporter of rapeseed and the Winnipeg Grain Exchange is the only organization in the world providing hedging and futures-trading facilities for this crop.

Sunflowers were also introduced as a cash crop during wartime but, unlike rapeseed, production has remained relatively small. Mustard seed acreage has expanded in recent years, spreading from southern Alberta to Saskatchewan and Manitoba. Soybean growing is confined to Ontario; acreage sown to this crop increased rapidly during and after World War II but has been quite stable for the past decade.

Although there are some 19 field crops for which annual estimates are made and which are produced over an extremely variable range of climatic, soil and farm organization conditions, wheat remains the major cash crop. Total exports of wheat, wheat flour, oats, barley, rye, flaxseed, rapeseed and their products amounted to 679,500,000 bu. in 1965-66, some 41 p.c. larger than the 1964-65 figure of 480,700,000 bu. but only 1 p.c. less than the record 1963-64 total of 684,700,000. The 1965-66 total exceeded by 59 p.c. the ten-year average of 428,000,000 bu. and was 91 p.c. greater than the long-term (1934-35 - 1963-64) average of 354,900,000. Exports of wheat and flour in terms of wheat, at 584,900,000 bu., were the second highest on record and were sharply above the 399,600,000 bu. exported in the preceding year. Exports of Canadian oats and oat products, at 15,900,000 bu. were little changed from the 15,600,000 bu. in 1964-65. Exports of Canadian barley and its products amounted to 38,000,000 bu. compared with the 1964-65 level of 37,000,000 bu. Rye exports registered an increase from 4,900,000 bu. in 1964-65 to 8,100,000 bu. in 1965-66. Clearances of flaxseed, at 18,900,000 bu. were 32 p.c. more than the 1964-65 level of 14,300,000 bu. while rapeseed exports, at 13,600,000 bu. represent the heaviest movement on record for this grain compared with 9,300,000 bu. in 1964-65.

The 1965-66 exports of wheat in bulk at an all-time high of 546,000,000 bu. were 9,300,000 bu. above the previous peak of 536,700,000 bu. cleared during 1963-64, some 49 p.c. greater than the 366,700,000 bu. of the previous year and 86 p.c. more than the ten-year average of 294,200,000 bu.

During 1965-66, the increase of 179,200,000 bu. recorded in wheat shipments, compared with shipments in 1964-65, reflected primarily the export of some 198,400,000 bu. to the Soviet Union compared with the shipment of only 8,800,000 bu. to that market during the previous year. At 77,900,000 bu., shipments to Communist China surpassed by 8 p.c. the previous record total of Canadian wheat exports to that country achieved in 1961-62 when they amounted to 72,000,000 bu.

Shipments of Canadian wheat to Britain, at 69,900,000 bu., were the lowest volume since 1953-54 and accounted for 13 p.c. of the 1965-66 export movement. Other leading markets during 1965-66 with quantities in millions of bu., 1964-65 figures in brackets, were as follows: Japan, 49.6 (50.1); India, 26.0 (7.3); Federal Republic of Germany, 22.9 (20.5); Poland, 13.3 (18.9); Cuba, 11.4 (8.1); Belgium and Luxembourg, 10.7 (15.5); Switzerland, 8.1 (3.9); Democratic Republic of Germany, 8.1 (10.5); Italy, 7.7 (3.9); Czechoslovakia, 7.5 (26.2); and Venezuela, 6.3 (9.1).

Estimated Area, Yield and Production of Principal Field Crops, 1966 and 1967

Crop	Area		Yield per Acre		Production	
	1966	1967	1966	1967 ¹	1966	1967 ¹
	acres	acres	bu.	bu.	bu.	bu.
All wheat.....	29,692,500	30,120,800	27.9	19.7	827,338,000	592,920,000
Winter wheat... ..	341,000	400,000	44.6	38.7	15,200,000	15,480,000
Spring wheat ² ..	29,351,500	29,720,800	27.7	19.4	812,138,000	577,440,000
Oats for grain.....	7,923,900	7,436,100	47.3	40.9	374,678,000	304,178,000
Barley.....	7,461,300	8,115,000	40.4	30.6	301,235,000	248,662,000
All rye.....	725,800	758,300	23.7	17.5	17,220,000	13,281,000
Fall rye.....	623,200	674,000	24.4	18.0	15,214,000	12,164,000
Spring rye.....	102,600	84,300	19.6	13.3	2,006,000	1,117,000
Mixed grains.....	1,766,600	1,668,200	46.1	45.8	81,443,000	76,427,000
Corn for grain....	806,600	875,500	82.2	84.6	66,328,000	74,083,000
Buckwheat.....	54,600	75,500	21.3	17.1	1,164,000	1,292,000
Peas, dry.....	61,300	47,400	17.8	23.5	1,094,000	1,115,000
Beans, dry.....	118,000	106,000	24.8	20.3	2,932,000	2,150,000
Flaxseed.....	1,917,700	1,107,400	11.5	9.2	22,020,000	10,178,000
Rapeseed.....	1,525,000	1,726,000	16.9	15.4	25,800,000	26,500,000
Soybeans.....	279,000	290,000	32.3	27.9	9,012,000	8,091,000
Potatoes.....	318,900	303,800	cwt. 171.5	cwt. 146.2	cwt. 54,679,000	cwt. 44,429,000
Mustard seed.....	200,600	221,000	lb. 825	lb. 678	lb. 165,400,000	lb. 149,900,000
Sunflower seed...	53,000	45,800	741	786	39,270,000	36,010,000
Tame hay.....	13,154,000	12,902,000	tons 1.98	tons 1.97	tons 26,049,000	tons 25,385,000
Fodder corn.....	577,700	596,400	11.50	12.29	6,643,000	7,328,000
Field roots.....	15,100	13,700	12.91	12.48	195,000	171,000
Sugar beets.....	81,272	84,621	14.35	12.60	1,166,554	1,066,600

¹As indicated on the basis of conditions on or about October 15, 1967.

²Includes relatively small quantities of winter wheat in all provinces except Ontario.

The Wheat Board

The Canadian Wheat Board, a Crown corporation in operation since August 14, 1935, is the general agency for all wheat, oats and barley produced in Western Canada and sold commercially for interprovincial or export movement. The farmer places these grains in annual marketing pools operated by the Board. He receives an initial payment at the time he delivers the grain at a country elevator or into a railway car and participates on the basis of his grain deliveries in any surplus the Board may subsequently realize on the sale of grain.

Through the provision of an initial price guaranteed by the Government of Canada, the Board stands as a buffer between the farmer and the constantly changing conditions of supply, demand and price under which wheat is produced. At the same time, the distribution of participation payments carried out from time to time steadies the flow of farm income and spreads it throughout the year.

The initial payment set by the Wheat Board in the 1965-66 crop year was \$1.50 per bu. basis No. 1 Northern wheat in store Fort William—Port Arthur or Vancouver. There were no adjustments or interim payments on the 1965-66 wheat pool, but on Jan. 13, 1967, the final payment was announced. Producers



A wide variety of mechanized machinery assists the farmer in planting and harvesting his crops. Many grain growers no longer live on their holdings but commute from nearby towns to work in the fields.

delivered 559,800,000 bu. of wheat to the 1965-66 pool, which included 18,900,000 bu. of Durum wheat.

The final payment distributed to producers was \$270,000,000 — which is \$70,000,000 higher than the 1965 payment and was exceeded only by the record payment of \$272,000,000 made on the 1963-64 pool account, when a larger volume of wheat was marketed. Of this amount \$9,900,000 was distributed to producers of Durum wheat. After deducting the Prairie Farm Assistance Act 1-p.c. levy, the average final payment on Spring wheat (other than Durum) was 48.087 cents per bu. and the average final payment on Durum grades of wheat was 52.549 cents per bu. The total payment for No. 1 Northern, basis in store Fort William—Port Arthur or Vancouver, and prior to deduction of the PFAA levy, amounted to \$1.99699 per bu.

Fruits and Vegetables

The processing industry plays an important part in the marketing of Canadian-grown fruits and vegetables. Over the years factories have been built in most of the important growing regions and considerable proportions of fruit crops and vegetables, particularly asparagus, beans, peas, corn and tomatoes, are canned, frozen or otherwise processed each season. Most of the vegetables for processing are grown under a system whereby the processor contracts annually with each grower for certain acreages. In recent years the importance of freezing has been increasing although the amount of produce processed in this way is still much smaller than the volume canned.

The most important fruit grown in Canada is the apple. Commercial apple orchards are found in Nova Scotia, New Brunswick, southern Quebec, much of Ontario and the interior of British Columbia, particularly in the Okanagan Valley. Tender tree fruits — pears, peaches, cherries, plums — are also grown in Ontario with the most important concentrations in the Niagara Peninsula and in Essex County. These same fruits, as well as apricots, are also grown on a large scale in the southern part of the Okanagan Valley in British Columbia.

In addition to tree fruits, strawberries and raspberries are cultivated on a commercial scale in the Maritimes, Quebec, Ontario and British Columbia. British Columbia fruit growers also produce loganberries on a commercial scale in the Lower Mainland and on Vancouver Island. Grapes are grown extensively in the Niagara district of Ontario and on a smaller scale in British Columbia.

The native blueberry is found wild over large areas in Canada and is harvested in commercial quantities in the Atlantic Provinces, Quebec and Ontario. A cultivated crop is grown in British Columbia.

Canada exports apples and blueberries. Most of the other fruit crops are usually below domestic requirements with imports making up the deficit. However, a considerable proportion of the fruits imported are brought in during the season when domestic supplies are off the market.

The total farm value of fruit crops grown in Canada in 1966 reached \$64,102,000. In the districts where these fruit crops are produced, sales make up an important part of the agricultural income. The 1965 apple crop was estimated at 22,316,000 bu. compared with 20,052,000 bu. in 1964, while crops of pears, peaches, sour cherries, sweet cherries, apricots and strawberries were below that of the earlier year. Grapes and cranberries were up from 1964.

Some market garden acreages are found close to the larger centres of population throughout Canada. In such areas a wide variety of crops is produced to meet the needs of the local market. Land holdings are often small. There is also considerable production of vegetables in areas where soils and climatic conditions are particularly suitable to vegetable crops.

Farm Values of Vegetables Produced, 1964-67

Vegetable	1964	1965	1966	1967 ¹
	\$ '000	\$ '000	\$ '000	\$ '000
Asparagus.....	1,221	1,251	1,236	1,223
Beans.....	4,529	4,183	2,169	2,675
Beets.....	1,069	893	959	958
Cabbage.....	2,744	3,359	3,705	3,595
Carrots.....	7,163	4,934	6,029	9,990
Cauliflower.....	1,630	1,922	1,981	2,320
Celery.....	1,231	1,005	1,637	1,482
Corn.....	6,860	6,731	6,830	7,186
Cucumbers.....	3,457	2,655	4,740	6,090
Lettuce.....	2,744	2,573	3,341	3,780
Onions.....	5,535	5,164	8,165	7,006
Parsnips.....	410	588	504	382
Peas.....	6,555	6,302	3,783	4,023
Spinach.....	572	602	606	373
Tomatoes.....	18,826	21,560	19,212	23,615
Turnips.....	3,771	3,721	5,358	4,185
Totals.....	68,317	67,443	70,255	78,883

¹ Subject to revision.



Mechanization is speeding up the harvesting of the fruit crop and doing away with much of the seasonal labour formerly required. Cherries fall to a canvas catching-frame, shaken off the trees by a machine that grips and shakes the trunk.

Strawberry pickers lie on a low platform propelled over the field by a small tractor. Strawberries are an important crop in Canada and the search for improved varieties is a continuing project of the Canada Department of Agriculture.



The famous apple-growing Annapolis Valley in Nova Scotia celebrates blossom time. The choosing of a Queen and her attendants has become a traditional event held on the grounds of Grand Pré National Historic Park, which commemorates the story of the Acadians.



Livestock

Livestock, particularly cattle, milk cows and hogs, are quite prevalent on the farms across the country, although there have long been distinct areas of specialization based on land resources and climate—beef cattle on the prairies, in the foothills and plateaus of the western mountains and in southern and western Ontario; dairy cattle in the Eastern Townships of Quebec and on the Quebec and Ontario farms along the St. Lawrence River; hogs in southern Ontario, Quebec and Alberta. Only in Newfoundland and the Yukon and Northwest Territories are farm livestock few in numbers and for this reason the figures given here are exclusive of those areas.

Within the past decade there has been a considerable trend toward greater specialization for all categories of livestock based on farm economics and markets. This is indicated by the declining percentage of farms reporting livestock; livestock of any type were reported on 76 p.c. of Canadian farms in 1966 compared with 81 p.c. in 1961. The percentage reporting cattle dropped from 78 p.c. to 73 p.c., hogs from 46 p.c. to 36 p.c. and sheep from 8 p.c. to 5 p.c. The raising of sheep has never been too important in Canada and is becoming less so; also, because so few horses are now used for farm purposes, their numbers have declined drastically.

On June 1, 1966, cattle and calves on Canadian farms in the nine provinces numbered 12,878,834, a figure about 8 p.c. above the number reported on the same date of 1961 and the second highest number ever recorded. All provinces except Nova Scotia, New Brunswick and Quebec reported increases in this comparison. Beef cows numbered 2,986,948 in 1966, outnumbering milk cows for the first time; of these 346,732 were on Ontario farms, 1,119,067 were in Alberta, 879,001 in Saskatchewan and 171,257 in British Columbia. Milk cows, on the other hand, continued to decline in numbers—at 2,673,868 they were 10.5 p.c. fewer than in 1961 but this decrease did not affect the production of milk which has continued upward.

Hogs in 1966 numbered 5,401,273, up slightly since 1961. Totals declined in the three most westerly provinces and New Brunswick but increased in the other provinces, particularly Prince Edward Island where a record 82,907 hogs were recorded. Sheep and lamb numbers continued the downward trend evident since 1931, being 1,005,616 compared with 1,548,214 in 1961. The breeding stock (sheep of over one year) was 509,108, down about 35 p.c.



Cattle, driven from their summer feeding ranges in the Alberta foothills, are herded to the holdup field where they are sorted and each owner starts the remainder of the drive home to winter ranges.

Marketings of livestock fluctuate from year to year, depending on demand, both domestic and export. Cattle marketings through public stockyards in 1966, direct to packing plants and on export, were 3,466,862 head, about 4 p.c. lower than in 1965. Calf marketings were higher in Alberta and the Atlantic Provinces but lower in other areas. Hogs marketed through inspected and approved packing plants totalled 6,860,030 head, down about 3 p.c. from the previous year, but quality continued to increase, Grade A accounting for 42 p.c. of the total gradings, excluding sows and stags, for that year. Sheep and lambs moved through stockyards direct to packing plants and on export amounted to 346,532 head, 21 p.c. lower than for 1965.

Exports of slaughter and feeder cattle in 1966 were down from the previous year by 35 and 25 p.c., respectively. Hog exports were about 55 p.c. higher but sheep and lamb exports declined by 52 p.c. Most of Canada's exports of livestock went to the United States.

Dairying

Dairying is common to almost all farming areas in Canada and has become a highly specialized business in the more densely populated sections. Ontario and Quebec each have about one third of the milk cows in Canada and a corresponding share of the total milk production. In 1966 there were 2,673,868 milk cows on farms compared with 3,160,000 in 1956, excluding Newfoundland.

Although the national dairy herd has declined considerably during the past decade, milk production has been substantially higher. Excluding Newfoundland, the number of farmers reporting milk cows decreased from 397,000 to 221,000 between 1956 and 1966 but farm output of milk increased about 8 p.c. from 17,000,000,000 lb. in 1956 to 18,000,000,000 lb. in 1966. Selective breeding and better management practices resulted in an average annual increase of approximately 2.8 p.c. per year in milk production per cow during this period.

Canadian farmers are selling more of their total milk supply now than they did a decade ago. Of the milk sold off farms in 1966, 63 p.c. was used for manufacturing purposes and 29 p.c. for the fluid market compared with 57 p.c. and 31 p.c., respectively, in 1956. Ten years ago, slightly more than 12 p.c. of the total milk supply was retained on farms compared with 8 p.c. in 1966. Milk delivered for the fluid milk market and manufacturing amounted to 16,700,000,000 lb. in 1966, 13 p.c. greater than similar sales in 1956.

Creamery butter, cheddar cheese, evaporated milk and skim milk powder are the leading dairy products manufactured in Canada. Most of the cheddar cheese and a high proportion of the concentrated milk products are produced in Ontario and Quebec. Butter production is more widely distributed. The principal dairy products normally exported are cheddar cheese, special varieties of cheese, evaporated milk, whole and skim milk powder, and casein, while imports consist of special varieties of cheese and casein.

Per capita consumption of milk and its products in whole milk equivalent was approximately 1,000 lb. per year from 1949 to 1957. It declined to 866 lb. in 1961, moved up to 918 lb. in 1963 and down again to 885 lb. in 1966. Total farm value of milk produced in 1966 was estimated at \$655,000,000. Of this amount, \$582,000,000 — 14 p.c. of total farm cash receipts from farming operations — was derived from the sale of milk, cream and farm butter.

Dairy Production by Economic Area, 1964-66

Economic Area and Year	Total Milk Production	Milk Used in Fluid Sales	Products Manufactured ¹			
			Butter		Cheddar Cheese	Ice Cream Mix
			Creamery	Farm		
	'000 lb.	'000 lb.	'000 lb.	'000 lb.	000 lb.	'000 gal.
Maritimes—						
1964.....	941,915	368,941	15,164	469	2,268	1,840
1965.....	930,057	377,044	14,603	359	2,324	2,027
1966.....	902,708	378,951	12,917	324	3,153	2,131
Quebec and Ontario—						
1964.....	12,912,780	3,487,045	243,205	881	137,936	15,089
1965.....	13,035,768	3,529,151	239,533	676	151,337	15,434
1966.....	13,214,787	3,561,152	244,615	609	158,920	16,168
Prairies—						
1964.....	3,797,456	787,869	88,605	3,416	3,382	5,119
1965.....	3,549,403	806,355	80,068	2,580	3,333	5,288
1966.....	3,378,075	803,821	72,444	2,256	3,743	5,401
British Columbia—						
1964.....	853,220	471,014	4,768	142	1,058	2,636
1965.....	844,726	493,001	3,177	126	1,094	2,908
1966.....	879,856	510,717	4,154	122	1,440	2,946
Totals—						
1964.....	18,505,371	5,114,869	351,742	4,908	144,644	24,684
1965.....	18,359,954	5,205,551	337,381	3,741	158,088	25,657
1966.....	18,375,426	5,254,641	334,130	3,311	167,256	26,646

¹Not included in this table are: whey butter, with a production of 4,507,000 lb. in 1964, 4,662,000 lb. in 1965, and 4,982,000 lb. in 1966; other cheese with 17,320,000 lb., 21,048,000 lb. and 26,607,000 lb., respectively; and concentrated milk products with 677,489,000 lb., 706,167,000 lb. and 733,747,000 lb., respectively.

Poultry and Eggs

Rapid application of technological advancements in breeding, feeding and housing practices has made poultry products competitive with other foods for the consumer dollar and has brought about intense competition within the industry itself. General farms have tended to lose interest in poultry but the more specialized operators have been spurred to greater production in order to maintain income. The proportion of farms keeping chickens declined from 69 p.c. to 55 p.c. between 1951 and 1961 and to 41.1 p.c. in 1966, but output of fowl and chicken meat almost doubled, egg production rose by almost 50 p.c. and turkey meat production almost quadrupled. Specialization has been most marked in the production of broiler-weight chickens and turkeys.

The effect of climate has been largely eliminated. While production before specialization was characterized by wide seasonal fluctuation, there is now a reasonably steady supply of fresh eggs and poultry on the market in all seasons. The development of broiler and egg production has been especially accentuated near the large consumer outlets such as Toronto, Montreal, Winnipeg and Vancouver, and in districts such as the Annapolis Valley of Nova Scotia, the Moncton area in New Brunswick and southwestern Ontario.

Eggs and poultry are marketed under rigid grade standards uniformly applied from coast to coast. The Canadian consumer has every confidence in the story the grade mark tells and the Federal Government inspection service lends confidence to interprovincial and export trading of poultry products.

Supply, Distribution and Consumption of Poultry Meat and Eggs, 1966

(Poultry meats on eviscerated weight basis)

Item	Total Meat	Fowl and Chicken	Turkey	Goose	Duck	Eggs
	'000 lb.	'000 lb.	'000 lb.	'000 lb.	'000 lb.	'000 doz.
Stocks at January 1	43,087	17,896	24,736	162	293	5,490
Production ¹	789,213	567,911	213,127	3,079	5,096	412,943
Imports	12,118	10,013	255	—	1,850	17,734
Total Supply	844,418	595,820	238,118	3,241	7,239	436,167
Exports	1,912	808	1,062	42	—	1,070
Stocks at December 31	54,291	23,806	29,741	224	520	4,230
Domestic disappearance	788,215	571,206	207,315	2,975	6,719	430,867
Less used for hatching	—	—	—	—	—	23,178
Domestic consumption	788,215	571,206	207,315	2,975	6,719	407,689
	lb.	lb.	lb.	lb.	lb.	doz.
Per capita consumption	39.6	28.7	10.4	0.15	0.34	20.5

¹ Production estimates do not include Newfoundland.**The Federal Government and Agriculture**

Canada's Department of Agriculture, created in 1867, is one of the oldest federal departments and, with over 11,000 employees, one of the largest. Its main functions include research to improve the efficiency of agricultural production through plant and animal breeding, development of management practices, and pest and disease control; inspection and grading of agricultural products to ensure orderly marketing; protection against the introduction of foreign diseases and pests; and the administration of agricultural assistance, rehabilitation and price stabilization programs. In May 1967, the opening of the Sir John Carling Building at the Central Experimental Farm in Ottawa brought headquarters' administrative offices to one location for the first time.

The Canadian Dairy Commission Act of October 1966 marked the entry of the Federal Government into the field of national marketing for dairy products. The Commission, responsible for stabilizing the price of manufacturing milk and cream, works closely with provincial agencies to co-ordinate national dairy policy, and has authority for interprovincial and export trade in dairy products. Also in 1966, Parliament amended the Crop Insurance Act to increase the maximum amounts of crop insurance from 60 to 80 p.c. of normally expected yields; increased the federal contributions to premiums from 20 to 25 p.c.; and provided for extension of coverage to fruit trees and other perennial crop-producing plants, as well as losses incurred through inability to seed summer-fallowing land because of natural causes.

Each year there is increased demand by farmers for long-term mortgage credit, reflecting their higher capital needs during a time when major adjustments are taking place in farming techniques and in the physical and financial structure of farms. The provision of such mortgage credit is the primary function of the Farm Credit Corporation which also administers the Farm Machinery Syndicates Credit Act of 1964, providing loans to groups or "syndicates" of farmers organized to share in the purchase and use of farm machinery.

The Production and Marketing Branch undertakes incentive programs designed to promote the increase of purebred stock on Canadian farms and to raise the quality and quantity of production. Grants are awarded to many groups concerned with these ideals. Grading and inspection services, long conducted by the Branch, have recently been enlarged in co-operation with provincial authorities.

The Canadian Livestock Feed Board administers subsidy policies related to transportation and storage of feed grains in Eastern Canada and British Columbia, ensuring the availability of grains and storage to meet requirements of livestock feeders and ensuring reasonable stability and fair equalization of feed grain prices.

The Agricultural Stabilization Board, by means of establishing support prices, assists the agricultural industry in realizing fair returns for labour and investment and in maintaining a fair relationship between prices received by farmers and the costs of the goods and services they buy. In 1966-67, price support was offered on 13 commodities and on milk and cream used in manufacturing.



Spraying a Prince Edward Island potato field. This province produces about 10,000,000 cwt. of potatoes annually, the high quality of which has earned consumer acceptance in widely dispersed markets.

PFRA Conservation Program. Continuous expansion of the Prairie Farm Rehabilitation Act (PFRA) had brought 87 community pastures into operation in Manitoba and Saskatchewan by early 1967. The total fenced area of these pastures was 2,325,564 acres and they provided grazing for 157,854 cattle belonging to 6,777 patrons. With suitable pasture land becoming scarce, PFRA has concentrated on establishing pastures on Indian Reserves. Four such pastures are now in operation and more are being prepared.

Since its inception in 1935, PFRA has assisted the three Prairie Provinces in the construction of a variety of water conservation projects. They range from farm dugouts and stock-watering dams to the St. Mary River and Bow River irrigation developments and the \$115,000,000 multi-purpose South Saskatchewan River project. A total of 96,500 large and small projects were built by the end of 1966.

The Tree Nursery at Indian Head, Sask., distributed over 10,000,000 trees to 10,500 farmers in 1966, an increase of over 14 p.c. over the previous year. The trees are used to plant farm home shelterbelts and field shelterbelts.

Research. About 1,000 research workers are employed by the Department of Agriculture, their specialties running the gamut of scientific agriculture from genetics to engineering. Throughout the country are 26 research stations, a number of substations and 13 experimental farms. The original work of the experimental farms was to determine the potential of soil and climate for producing crops and maintaining livestock and to develop and test varieties, breeds and management practices suitable for each area. Today's research program, while continuing these activities, is much more comprehensive.

Among the recent achievements is the discovery by departmental scientists of a new, extremely powerful antibiotic, Myxin, which it is hoped will be a valuable weapon against diseases of plants, animals and humans. Entomologists are developing more effective chemicals to use against pests that have developed resistance to currently used pesticides and are evaluating entirely new control techniques including the use of sex attractants and the release of sterilized males. New systems of livestock nutrition and management have been developed that may lead to the production of a large proportion of Canada's high-quality beef from dairy cattle instead of from beef herds. Soil scientists now have a well-established classification system for mineral soils and have agreed upon a classification system for organic soils. A soil capability rating system, adopted in 1964, has been applied successfully to 250,000,000 acres of land. Important new crop varieties are being developed—one of them, a high-yielding, high-quality spring wheat named Manitou, has shown outstanding resistance to both leaf and stem rust.

Exports. Canada continues to be a major exporter of cereals, cereal products, seed, livestock and livestock products, poultry and poultry products, fruits and vegetables. In recent years agricultural exports have accounted for one fifth of Canada's export trade. Sales of farm products abroad are an important source of foreign currency for use in purchasing food and other goods not produced in this country. As a participant in the World Food Program of the United Nations, Canada pledged a contribution of \$30,000,000 for the three-year period 1966-68, three-quarters of which is to be in commodities. Among the products

developed by the Department to help meet the world's need for food are Etohs—dried mixtures that can be made from peanuts and fish, yams or potatoes. In preliminary trials in Nigeria and Ghana, they have been well accepted.


Fisheries

By the middle of the twentieth century Canada had become an industrialized nation, but the fisheries on which the economy had been founded centuries before have continued to play a significant role in the development of the nation. During 1966, landings in the Canadian commercial fisheries achieved records in both quantity and value. The total catch of 2,600,000,000 lb., had a value to fishermen of \$177,000,000, representing increases over 1965 of 8 p.c. in quantity and 10 p.c. in value. Estimated conservatively, the marketed value of fishery products exceeded \$340,000,000.

At present the industry contributes some \$250,000,000 yearly to Canada's wealth and gives employment to approximately 80,000 fishermen and 15,000 plant workers. Workers in other industries also make a living by building and equipping the plants, or manufacturing the boats, nets, gear and refrigerated trucks needed to catch, process, pack and ship the fish.

Even as it comes from the water, and before it is processed or packed, the catch is worth approximately \$150,000,000 per year to the fishermen. It supplies an important proportion of the local income in the Atlantic Provinces, British Columbia and in the more remote regions of Ontario and the Prairie Provinces where people have little other opportunity for making a living, and, since the products derived from fish, mammals and seaweeds are far in excess of Canadian needs, about 70 p.c. in terms of value are sold to other nations, thus earning significant amounts of foreign currency.

Of the 80,000 fishermen in Canada, approximately 60,000 are engaged in the sea fisheries and 20,000 in the lake fisheries. In most years they catch about 750,000 tons. There are between 300 and 400 plants classified to the fish products industry (exclusive of those plants mainly engaged in merchandising unprocessed fish although also doing some processing) which include freezing, salting, smoking, pickling and canning plants. Those in British Columbia tend to be very large and few in number; those on the Atlantic are more numerous and many are small. What is believed to be the largest plant in the world for



Fishermen think they are dreaming when they see this 40-foot-high model of a muskellunge at Kenora in the Lake of the Woods area of Ontario. It has the exact proportions of the fish that always gets away. However a catch weighing 40 pounds is not uncommon in these lakes.

The midwater trawler Lady Anna is one of the vessels being used co-operatively by the federal and provincial Departments of Fisheries for experimental fishing for herring off the East Coast. After successful operations in Nova Scotia waters she was transferred to Newfoundland's southwest coast where spectacular catches were made.



processing freshwater fish is on Lake Erie not far from Windsor, but it is small when compared with many of the coastal operations. The plants, with their complicated machinery, represent the biggest investment. But there are also 50,000 fishing boats of all sizes as well as packer and collector boats, fishing gear, piers and wharves.

Approximately 90 p.c. of the \$240,000,000 worth of fish products sold in Canada come from the sea and the remaining 10 p.c. from inland waters; 60 p.c. of the sea fish products are produced in the Atlantic Provinces, 30 p.c. in British Columbia, with the remainder coming from the inland provinces. More than half of the freshwater fish is taken in the Great Lakes, the large Manitoba lakes and Great Slave Lake but the total catch from hundreds of smaller lakes in the north country increases every year as new road and air transportation makes it possible to bring the fish to market.

Atlantic Fisheries

Canada's Atlantic fisheries can be divided into four sectors. The mighty *groundfishery* is by far the largest. Its products, which include cod fillets, halibut steaks, salt cod and many other items, account for well over half the total value of the entire output of Canada's Atlantic fishing industry. Second is the *lobster* fishery which accounts for nearly 20 p.c., the two fisheries between them making up 70 p.c. of the total. Third in importance is the *herring* fishery and the fourth sector, made up of a dozen or more small fisheries, may be called "miscellaneous".

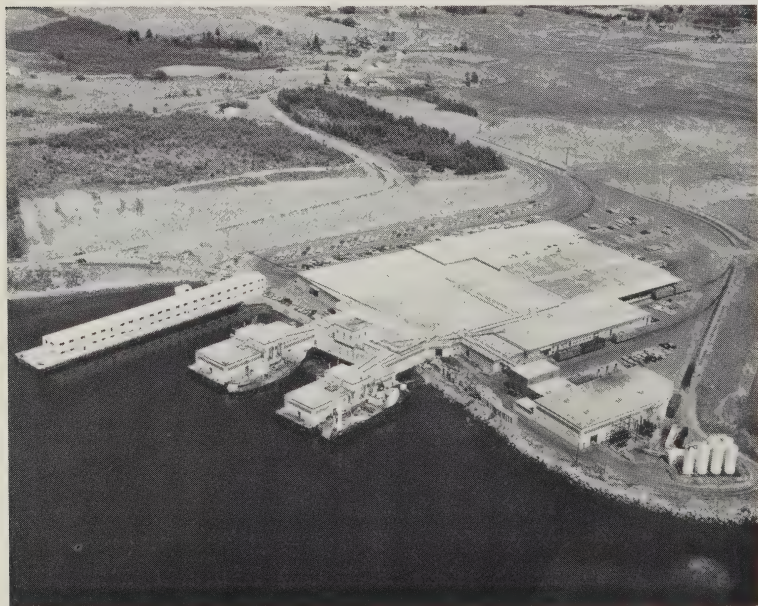
Cod makes up most of the groundfish catch but haddock, flounders, redfish, pollock, halibut, hake and other similar fish which live on the sea bottom are also included. Offshore, these fish are scooped up by dragging an otter trawl, a huge cone-shaped net, along the ocean floor. Inshore, large quantities of cod are caught in stationary fish traps. Most rapid expansion in recent years has been in production of cod fillets frozen together in large slabs. These solid slabs of fish, shipped in refrigerated cars or trucks, are the raw material of the fish-stick industry, which has grown very fast in the United States and now uses most of the groundfish slabs produced in Canada. Newfoundland's output of groundfish fillets also has increased very quickly in recent years and is still growing.

Some 30 or more new groundfish processing plants of various sizes located throughout the Atlantic Provinces began operations in 1965 and additional plants designed especially to produce herring meal and oil opened in 1966.

In New Brunswick tiny herring are canned as sardines, supporting a large, prosperous industry in that province and adult herring are pickled or smoked in dozens of plants scattered along the Atlantic Coast, becoming bloaters, kippers and smoked boneless herring.

One of the fastest developing fisheries of the miscellaneous sector is the scallop fishery. Since 1960 landings have more than doubled mainly because of the introduction of large draggers capable of making trips to the more distant fishing grounds off the United States east coast. Swordfishing reached a peak in 1963 but has since tapered off although the quantity landed in 1965 was still more than double that of the 1961-62 period.

This fish processing plant at Lunenburg, N.S., is one of the largest on the Continent. Its main output is frozen groundfish fillets.



Pacific Coast

On the Pacific Coast, Canada has three very large and three small fisheries. The most important is salmon, which accounts for two thirds of the value of all products of British Columbia fish plants. Herring and halibut account for about 20 p.c. with other species of fish and shellfish, as well as seals and whales, making up the remaining 13 p.c.

Salmon are taken by gill-net, seine and troll. A gill-net with floats at the top and weights at the bottom hangs from the surface of the water like a large mesh curtain into which the salmon swim and become enmeshed as they attempt to migrate from the ocean into freshwater to spawn. A purse seine is a small mesh net paid out around a school of fish and then "pursed", surrounding them so that they cannot escape. The seine is then hauled in, crowding the fish into a small area from which they are scooped into a boat. Trolling for salmon is accomplished by dragging as many as 24 lures through the water, hooking the fish in much the same way as is done by sport fishermen.

More salmon is canned in British Columbia than is required by the Canadian market. Although most of it goes to Britain, other Commonwealth and Western European countries also take considerable quantities. Frozen whole salmon and salmon steaks are sold all over North America.

Pacific halibut is caught mainly in the waters off northern British Columbia, Alaska and in the Bering Sea. The fishery is controlled by the International Pacific Halibut Commission which was established in 1923 by treaty between Canada and the United States. Most of the catch is sold in fresh and frozen form in North America but Canadian halibut has become increasingly popular in Britain.

Most of the herring catch is taken with purse seines and processed into fish meal and oil. Herring meal is mixed with grain meals and other ingredients to make feed for farm animals and pets and herring oil is used in the manufacture of shortening, margarine, paints, ink and machine oil.

Shellfish caught in British Columbia include oysters, crabs, clams, shrimps and prawns, in descending order of importance. Groundfish, other than halibut, are also landed by British Columbia fishermen. As on the East Coast, the bulk of the catch is taken with otter trawls.

The pack of canned salmon represents about 50 p.c. of the value of all fishery products produced in the province. Although there are four main species canned, about half the cases produced are of the pink variety. Next in importance, in terms of volume, is sockeye followed by coho. The annual output fluctuates considerably with the extent of the catch but usually amounts to about 1,200,000 cases (of 48 lb.). Some 43,500,000 lb. of canned salmon were exported in 1967, a 70-p.c. increase over 1966.

Freshwater Fisheries

Perch, yellow pickerel, whitefish, and smelts are the four most important commercial species caught in the inland waters of Canada. The chief market for freshwater fish is in the United States and large quantities of fresh and frozen dressed fish and fillets are shipped annually.



British Columbia's heavy catches of salmon are processed in large automated canneries. Salmon accounted for \$32,600,000 of the province's 1966 revenue of \$58,600,000 derived from its sea fisheries.

Quantity and Value of Landings of the Chief Commercial Fish, 1965 and 1966

Kind of Fish	1965		1966 ¹	
	Quantity '000 lb.	Value \$'000	Quantity '000 lb.	Value \$'000
Atlantic Coast	1,688,614	94,989	1,913,764	94,469
Cod	575,446	23,637	561,201	24,654
Haddock	92,933	6,054	113,106	8,040
Halibut	4,472	1,492	4,850	1,725
Herring	405,757	4,256	550,835	6,215
Lobster	40,522	26,632	37,210	20,827
Mackerel	24,496	801	25,718	901
Redfish	127,453	3,340	183,595	5,081
Salmon	4,623	2,221	5,176	2,670
Swordfish	7,805	3,253	6,890	2,976
Other ²	405,107	23,303	425,183	21,380
Pacific Coast	626,161	47,435	559,226	58,605
Halibut	32,973	11,112	31,470	11,282
Herring	444,061	6,232	305,783	5,570
Salmon	90,190	25,958	153,237	32,551
Other ²	58,937	4,133	68,736	9,202
Inland	119,446	14,972	116,983	15,214
Perch	21,352	2,654	22,374	1,990
Pickrel (Yellow)	9,717	3,143	11,189	3,995
Whitefish	24,236	3,896	20,492	3,501
Other ²	64,141	5,279	62,928	5,728
Totals	2,434,221	157,396	2,589,973	168,288

¹ Preliminary figures only.

² Includes fish and shellfish and fish viscera and scales.

Forestry

Canada's extensive forests are its greatest renewable natural resource. Productive forest lands contribute to the nation's economy as a producer of raw materials for industry and as a means of livelihood for hundreds of thousands of persons. In addition, the forests control run-off and prevent erosion, provide shelter and sustenance for wildlife and recreational facilities for people.

Of the total forest area in Canada—1,094,904,000 acres out of a land area of 2,278,552,000 acres—614,303,000 acres are classified as productive. The remaining unproductive areas are found chiefly along the northern edge of vegetation where the small size of the trees and their slow growth combine to give them little potential value. In 1966 the productive forest—soil capable of producing continuous crops of wood of commercial value—included 342,708,000 acres of softwood, 142,000,000 acres of mixed wood, 73,304,000 acres of hardwood and 56,291,000 acres of productive forest land not yet restocked.

Productive Forest Land and Merchantable Timber, by Province

Province or Territory	Productive Forest Land	Merchantable Timber
	'000 acres	'000,000 cu. ft.
Newfoundland.....	21,672	14,296
Prince Edward Island.....	520	250
Nova Scotia.....	9,651	9,782
New Brunswick.....	15,288	16,871
Quebec.....	141,200	108,132
Ontario.....	105,323	111,570
Manitoba.....	37,241	12,846
Saskatchewan.....	26,971	20,171
Alberta.....	74,606	54,960
British Columbia.....	133,383	376,919
Yukon Territory.....	26,944	9,156
Northwest Territories.....	21,504	14,029
Totals.....	614,303	748,982

About 82 p.c. of this forest land is publicly owned and administered by the ten provincial governments which make the forest crop available to the forest industries through a variety of systems. The remaining 18 p.c. is made up of farm woodlots, forest land owned by companies and by individuals, and areas for which the Federal Government is responsible.

Average annual utilization of some 3,500,000,000 cubic feet, together with losses, is much less than the annual over-all growth of the forests. Nevertheless, the drain is increasing and, because it is concentrated on the relatively small area of occupied forest land, overcutting is a possibility and has prompted governments and industry alike to plan for greater production.

Over the past few years, the standards of utilization of Canada's forests have been much improved. Today, more pulp and paper can be produced from one cord of wood than ever before. Alcohol, vanillin, tanning liquor, road binders and turpentine are made from what were formerly waste materials in the production of pulp. The development of new pulping processes and the manufacture of products such as fibreboard, particleboard and laminated wood products permit the harvesting of formerly unused woods and the more complete use of wood harvested.

Canada's Forest Trees. There are more than 150 tree species in Canada, of which 31 are conifers or 'softwoods'. About two thirds of these softwoods and one tenth of the large number of the deciduous or 'hardwood' species are of commercial value.

The spruces are the most important forest trees in Canada. Although red spruce is found only in Eastern Canada, and Sitka and Engelmann only in the far west, black spruce and white spruce are found from the Atlantic almost to the Pacific, and northward to Alaska. About one third of Canada's timber volume is spruce. The wood is used for pulpwood, lumber and plywood.

Second only to the spruces are the two-needled pines — jack pine, which grows from Nova Scotia to northern Alberta and the Northwest Territories, and lodgepole pine in western Alberta, British Columbia and Yukon Territory. These pines comprise 11 p.c. of Canada's standing timber volume.

Third in importance are the true firs, of which the most widely distributed is the balsam fir, found from the Atlantic seaboard west to north-central Alberta. In the far west are three species: grand fir, which grows on the southern coast of British Columbia and in the southern interior; amabilis fir, found at intermediate levels on the coast; and alpine fir, which grows in the mountains and interior of British Columbia, the foothills of Alberta and southern Yukon Territory. The wood is commonly cut as pulpwood and, to a lesser extent, as sawlogs.

Boom men use small scooters to round up logs. The water drive is by far the cheapest way of transporting logs to the mill although in some areas much of the hauling is done by truck.



Next in abundance is a family of eight broadleaved deciduous trees: the trembling aspen, largetooth aspen, balsam poplar and five cottonwoods—the eastern, plains, lanceleaf, narrowleaf and black cottonwood. In demand for veneer stock, the latter and its hybrids will yield large wood volumes per acre on short rotations under intensive management. The other species in this group are used in the manufacture of excelsior and soda pulp.

Fifth among Canada's forest trees is the hemlock—eastern hemlock grows in the Maritimes, southern Quebec and Ontario; western hemlock at lower and intermediate levels throughout the coastal and interior wet belts of British Columbia; and mountain hemlock at higher elevations in the southern mountains of British Columbia, growing down to sea level on wet, exposed sites on the northern coast and the panhandle of Alaska. Western hemlock is a valuable pulpwood species. Eastern hemlock is a main commercial source of tannin and the wood is used for railway ties, wood-stave pipe, lumber and pulp. Mountain hemlock is not important as a timber species.

The tree responsible more than any other for British Columbia's world-wide reputation for timber is the coastal form of the Douglas fir, which is dominant in the forests of the south coast and the southeastern half of Vancouver Island. An interior form, the blue Douglas fir, is widely distributed throughout the Rocky Mountain system. Douglas fir is used extensively for lumber, plywood, construction timbers, piling and kraft pulp.

Next in order are the cedars, including arborvitae and yellow cedar. The eastern white cedar is found from western Nova Scotia to Manitoba. The western red of British Columbia attains heights of 150 to 200 feet and diameters of 8 to 10 feet. It is used for lumber, hand-split shakes, shingles, poles and posts. British Columbia yellow cedar is prized for boat-building and interior finishing and is useful for poles, piling and as battery separators.

Finally, there are the birches. Most abundant is the white birch which grows widely throughout Canada. Western white birch is a large tree, reaching heights of 100 feet and diameters of three to four feet, found in northern and western Alberta, in British Columbia and also on the Atlantic Coast in the east. However, the most important hardwood tree in Eastern Canada is the yellow birch, which grows in southern Newfoundland, the Maritimes, Quebec and Ontario. Its wood is much in demand for flooring, furniture, veneer and railroad ties.

Canada is indeed fortunate to possess such a diversity of useful tree species. The white pine and spruce in the east, and Douglas fir, western red cedar and western hemlock in British Columbia have won for Canada its enviable position as the world's leading nation in forest products trade.

Administration and Research. All forest land in provincial territory, with the exception of the minor portions in National Parks, federal forest experiment stations, military areas and Indian reserves is administered by the respective provincial governments, each of which has a forestry program for the protection of its forest resources suited to its own needs. The Federal Government functions in this field are related mainly to research and to co-operation with the provinces in their efforts to protect and wisely manage the forest resources of Canada. Under the federal-provincial forestry agreements the federal government assists through financial measures in the taking of forest



Portable equipment removes the limbs from full trees brought from the forest and cuts them into 8-foot lengths in which form they are trucked to the mill. This machine is in use in the Saguenay district of Quebec.

inventories, and provides federal financial support for programs of forest inventories and reforestation and for other protective and improvement measures.

The Forestry Branch of the Federal Department of Forestry and Rural Development, in addition to managing and protecting the forests on federal land and providing consultation services to other federal departments, conducts a full program of regionally oriented forestry research in each of seven regions across the country, and carries out broad programs of research with national application at a number of highly specialized institutes. The research program may be divided into two categories—forest research includes investigations into silviculture, entomology, tree breeding, forest pathology, taxonomy, forest soils, tree physiology, and other disciplines; forest products research is directed toward the improved use of wood, reduction of wood waste, and improved methods of processing and manufacturing wood products.

The Pulp and Paper Research Institute of Canada at Pointe Claire, Que., under the joint sponsorship of the Canadian Pulp and Paper Association, the Federal Government and McGill University, is the major centre of research and learning in the area of pulp and paper products.

Forest Industries

This group of industries accounts for almost 25 p.c. of all Canadian exports. It includes logging, the primary wood and paper manufacturing industries, using round wood as their principal raw material, and the secondary wood and paper industries, using lumber, pulp, basic paper, etc., as their principal raw materials for further manufacturing into a host of different wood and paper products.

Logging. The degree of mechanization in the logging operations of Eastern Canada continues to increase rapidly. Several highly sophisticated wood harvesting and processing machines are in advanced stages of development. In British Columbia, where the mechanization of logging operations started much earlier, recent experiments with "balloon-logging" have given promising results. The rapid expansion of the pulp and paper industry and other developments in British Columbia appear to be leading to better utilization of forest resources.

The output of Canada's forests in 1966, in the form of sawlogs, veneer logs, bolts, pulpwood, fuelwood, poles, etc., and other primary forest products such as Christmas trees, amounted to an estimated 3,842,000,000 cu. feet of wood. Most of the roundwood for industrial purposes was processed to some degree in Canada; less than 4 p.c. was exported without further processing.

Wood Industries

Sawmills and Planing Mills. This industry is particularly dependent upon the general economic condition of the country and on the state of foreign markets. The effects of fluctuating demand are more noticeable in British Columbia than elsewhere in Canada because of the importance to that province of the sawmills and planing mills industry. The provisional figure for Canadian lumber production by this industry for 1966 stands at 10,008,000,000 ft. b. m., slightly below the 1965 figure of 10,167,000,000 ft. b. m. Of the 1966 total, British Columbia accounted for 68.8 p.c., the Prairie Provinces and the Yukon and Northwest Territories for 3.8 p.c., Ontario for 8.8 p.c., Quebec for 13.4 p.c. and the Atlantic Provinces for 5.2 p.c. These respective percentages have not changed substantially from those for the previous year.

The world's widest newsprint machine is located in Fort William, Ont. Canadian mills produced close to 8,500,000 tons of newsprint in 1966.



Canadian sawmills vary greatly in size and product. A few, located in coastal British Columbia, are capable of cutting up to half a million board feet of lumber in a single shift. Others are small enterprises, often turning out only five or six thousand feet a day. Spruce is the leading species, both in volume and value. Douglas fir is second, followed in volume produced by hemlock, cedar, jack pine, white pine, balsam fir, maple and yellow birch.

The sawmills and planing mills industry proper employed 49,066 employees who earned \$231,900,000 in salaries and wages in 1966. Shipments amounted to 10,217,934,000 ft. b. m. of lumber with a gross value of \$767,773,000. Exports amounted to 6,117,282,000 ft. b. m. valued at \$473,948,000.

Other Wood Industries. This group includes the industries, other than the sawmills and planing mills and the pulp and paper industry, that use wood as their principal raw material: shingle mills, veneer and plywood mills, sash, door and other millwork plants, wooden box factories, etc. Most of these industries obtain from sawmills and planing mills the wood that they transform into flooring, doors, windows, laminated structures, prefabricated buildings, boxes, barrels, caskets, woodenware, etc.

In 1966 these industries employed 42,229 persons (40,169 in 1965) and paid out \$191,708,000 (\$170,255,000 in 1965) in salaries and wages. The gross selling value of their products was \$671,378,000 (\$591,332,000 in 1965). Of this amount the sash, door and other millwork plant industry accounted for \$230,009,000 (\$189,058,000 in 1965) and the veneer and plywood industry for \$240,794,000 (\$222,438,000 in 1965).

The huge piles of four-foot logs awaiting processing in the mill are familiar sights in the pulp and paper producing cities and towns of Canada.



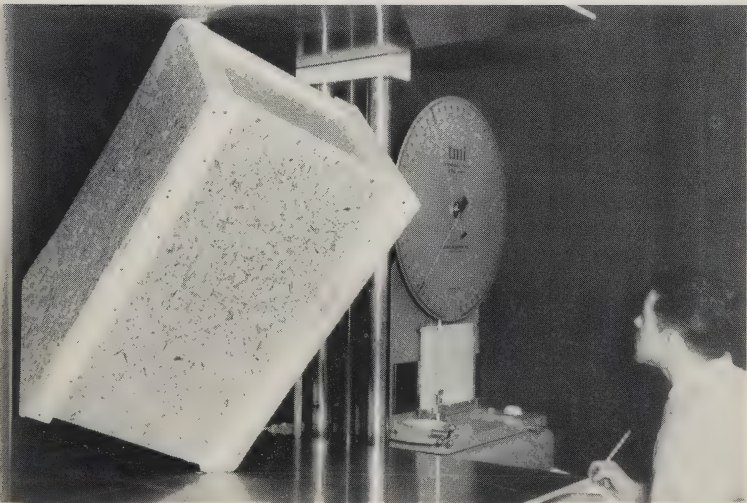
Pulp and Paper. The manufacture of pulp and paper has been Canada's leading industry for many years. It stands high among all industries in value of production, exports, total wages paid, and total capital invested. It is the largest consumer of electric power and largest buyer of goods and services in the land. The industry has a newsprint capacity of more than three times that of any other country and provides approximately 42 p.c. of the world's newsprint needs. Canada is the world's largest pulp exporter and stands second to the United States as the largest pulp producer.

**Principal Statistics of the Pulp and Paper Industry,
1960, 1962 and 1966**

Item	1960	1962	1966
Establishments..... No.	128	125 ¹	134
Employees..... "	65,642	64,885	73,501
Salaries and wages..... \$'000	344,410	355,245	486,249
Gross value of factory shipments..... "	1,578,727	1,716,300	2,297,662
Value added by manufacture..... "	811,547	880,260	1,100,261
Pulp shipped..... '000 tons	1	3,690	5,066
..... \$'000	1	436,920	630,154
Paper shipped..... '000 tons	1	8,661	11,243
..... \$'000	1	1,190,498	1,544,576
Pulp exported..... '000 tons	2,600	3,044	4,096
..... \$'000	325,122	369,902	520,068
Newsprint exported..... '000 tons	6,190	6,148	7,821
..... \$'000	757,930	753,060	968,224

¹Not available.

Diagonal compression of a cleated particle-board box being tested in a federal Forest Products Research laboratory to evaluate its strength as a shipping container.



Although the pulp and paper industry is primarily engaged in the manufacture of wood pulps and basic papers and paperboards, it also produces converted papers and paperboards and even chemicals and other by-products. Over 73 p.c. of the woodpulp manufactured was converted to other products in Canada; the remainder was exported.

Canadian production of basic paper and paperboard in 1966 was 11,611,000 tons. Quebec's share of this figure was 45 p.c., Ontario's 26 p.c., British Columbia's 14 p.c., and that of the remaining provinces 15 p.c. Of the total production of basic paper and paperboard, newsprint accounted for 73.5 p.c., or 8,530,000 tons; 7,821,000 tons were exported in that year; the latter figure represented 92 p.c. of the total exports of basic paper and paperboard.

Continuous fundamental and applied research into woodland and pulp and paper mill operations is carried out by the Pulp and Paper Research Institute of Canada, which also, in co-operation with McGill University, trains postgraduate students in fields of interest to the pulp and paper industry.

Paper-Using Industries. These include the asphalt roofing manufacturers, the paper box and bag manufacturers and other paper converters as well as establishments using synthetic materials, metal foil, etc., to produce articles similar to those manufactured from paper and paperboard.

In 1966 this group comprised 489 establishments (469 in 1965), employed 37,893 persons (35,109 in 1965) and distributed \$192,432,000 in salaries and wages (\$168,489,000 in 1965). The value of shipments of goods of own manufacture set a new record of \$868,002,000 (\$777,443,000 in 1965).

Furs

Production of wild and farm furs continue to make a substantial contribution to Canada's national income. Furs are produced in all provinces and, besides returns from the sales of pelts, the thriving fur farming industry has boosted the economy of many areas through creation of a chain of associated businesses such as feed supply houses and pelt processing stations.

In the case of furs from the wilds, trapping returns are distributed through countless northern villages, a welcome source of revenue for many part-time trappers as well as for professionals.

Fur farming began in Prince Edward Island towards the close of the last century, with the raising of black and silver fox. The value of fox pelts produced on farms reached a peak of \$5,124,187 in 1943. Since then their value has declined rapidly, reaching a low point of \$12,525 in 1963 but rising to \$33,829 in 1946. Although the average value of fox pelts decreased from \$53.21 in 1965 to \$37.35 in 1966, the total value increased due to an increase in production. Mink farming, beginning in Canada around 1910, has become the most important branch of fur farming. In 1966 mink accounted for 99 p.c. of the value of pelts produced on farms during that year.

The industry is fairly well distributed among all provinces but there has been considerable consolidation in recent years. Fur farms numbered 2,203 in 1966 and the number of ranch-raised fur-bearing animals pelted in 1966 was 1,825,851. Numbers pelted by species were: mink, 1,804,784; fox, 804; chinchilla, 19,133; and nutria, 1,130. Estimated value of mink, fox, chinchilla and



Canadian mink, otter and beaver pelts on display at the International Fur Fair held in Frankfurt, Germany.



Selective breeding has produced attractive mutations that have assured for mink a continuing dominant position on world markets.

nutria pelts was \$22,657,363 in 1966. Although 11 p.c. more mink pelts were produced than in 1965, the value decreased by 21 p.c.

Ontario was the leading province in 1966 in the value of mink production with 566,262 pelts valued at \$6,839,569, followed by British Columbia with 386,796 pelts valued at \$4,894,671; Manitoba, 255,639 at \$3,379,454; Alberta, 190,691 at \$2,389,949; Quebec, 137,571 at \$1,602,586; Saskatchewan, 110,021 at \$1,390,811; and Nova Scotia, 107,868 at \$1,287,259. The value of mink pelts produced in Newfoundland, New Brunswick and Prince Edward Island combined was less than one million dollars. Mink on farms at the end of 1966 numbered 746,890 and the number of mink farms, 1,452. The average realized price per mink pelt decreased for all types.

Reported production of all pelts during the 1966-67 fur season was 5,221,750 and the value, \$35,103,371; wildlife pelts accounted for \$12,446,008 or 35.4 p.c. of the total. Value of undressed furs exported during the 1966-67 season was \$28,697,000 and that of imports, \$15,379,000.

Number and Value of Pelts Produced, by Kind, 1966-67 Fur Season

Kind	Pelts	Value	Average Value
Wild—	No.	\$	\$
Squirrel.....	635,058	390,056	0.61
Muskrat.....	1,732,404	1,695,245	0.97
Beaver.....	371,533	4,731,570	12.73
Ermine (weasel).....	133,592	130,873	0.97
Rabbit.....	50,672	21,457	0.42
Mink.....	88,614	1,017,947	11.48
Fox—White.....	34,126	536,052	15.70
Other.....	30,460	176,798	10.17
Lynx.....	13,038	362,103	27.77
Marten.....	55,042	498,537	9.05
Raccoon.....	33,911	106,857	3.15
Seal—Fur.....	12,830	672,782	52.44
Hair.....	153,980	1,373,096	8.92
Other (badger, bear, coyote, fisher, otter, skunk, wildcat, wolf, wolverine).....	50,639	732,635	...
Totals, Wild.....	3,395,899	12,446,008	...
Ranch-Raised—			
Chinchilla.....	19,133	227,357	11.85
Fox.....	804	30,029	37.35
Mink.....	1,804,784	22,397,717	12.88
Nutria.....	1,130	2,260	2.00
Totals, Ranch-Raised.....	1,825,851	22,657,363	...
Grand Totals.....	5,221,750	35,103,371	...

Mining

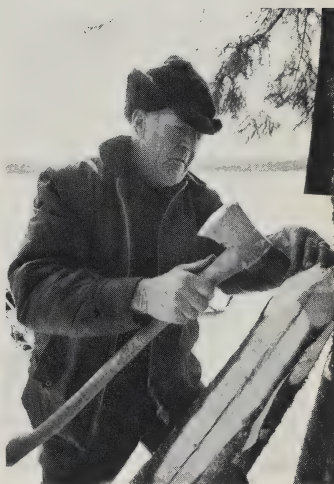
Canada, abundantly blessed with mineral raw materials vital to the needs of primary and secondary manufacturing industries, ranks as the world's third largest diversified mineral producer, following the United States and the Soviet Union, and is the largest exporter of minerals and mineral products. The remarkable progress of the Canadian mineral industry since World War II is shown by the increase in value of mineral production from \$499,000,000 in 1945 to slightly more than \$1,000,000,000 in 1950, \$2,476,240,506 in 1960 and \$3,972,480,919 in 1966. Measured in relation to the country's population, the value of the per capita output of the mineral industry has risen from \$76.24 in 1950 to \$139.48 in 1960 to \$198.48 in 1966. The index of the volume of mineral production — a means of measuring the mining industry's absolute growth — was 393.6 (1949=100) in 1966 compared with 365.8 in 1965.

Ontario continued as the leading province in mineral production with an output value of \$957,857,765 or 24.1 p.c. of the Canadian total. Alberta's petroleum sustained that province in second place and Quebec was in third position with a wide range of mineral products.

Atlantic Provinces. *Newfoundland's* non-ferrous metal mines produced copper, lead, zinc, gold and silver worth more than \$35,000,000. Despite the closing of the Wabana mine and a fire in the Wabush concentrator, iron ore shipments rose to more than 16,500,000 tons. Most of Canada's fluor spar (used in the reduction of bauxite to aluminum and in the manufacture of fluoride



Today's prospectors are generally experts financed by large corporations and equipped with the latest geophysical detection devices, but still the lone prospector can make his way into the mineral-rich lands to stake his claim. In 1968 the most publicized rush was for uranium in the Elliot Lake region of northern Ontario.



chemicals) came from the Burin peninsula. Some 58,000 tons of asbestos were mined at Baie Verte and 450,000 tons of gypsum in the western part of the island. Canada's sole production of pyrophyllite came from Long Pond near St. John's. Total value of structural materials produced exceeded \$5,705,000. Although the geology of *Prince Edward Island* is not conducive to mining, some exploration for petroleum has been undertaken. Road building materials come from local gravel pits and stone quarries. *Nova Scotia's* 1966 coal production dropped below 4,000,000 tons, further evidence of the steady decline in this sector. Barite and base metal ores (copper, lead, silver and zinc) were mined at Walton. Much of the gypsum produced (valued at \$8,140,651) was exported to the United States. Rock and brine salt production totalled 450,000 tons. Structural materials including clay products, cement and sand, gravel and stone were valued at \$17,262,942. Total value of mineral production in *New Brunswick* reached \$90,221,000, most of it from base metal mines in the Bathurst area where new milling and smelting installations are expected to enhance the future of the mining industry in the province. Zinc contributed \$43,003,000 to the total; lead, \$15,497,000; copper, \$6,366,000 and silver, \$4,349,000. Small amounts of cadmium and gold were also produced. Mineral fuels (largely coal) were valued at \$8,005,000 and structural materials, \$10,934,000.

Quebec. In 1966 the value of minerals produced in this province reached \$762,944,986, including some 15 metals valued at \$456,257,300. Quebec was the leading producer of bismuth, columbium, remelt iron, selenium, tellurium, zinc, asbestos, feldspar, iron oxide, lithia, magnesitic dolomite, brucite, mica, peat moss, pyrite, soapstone, titanium dioxide and stone.



A modern drill jumbo works underground at a copper mine at Merritt, B.C. All provinces and territories except Alberta and Prince Edward Island have copper deposits. Estimated production in Canada for 1967 was 592,000 tons, of which Ontario supplied some 270,000 tons and British Columbia, 82,000.

Iron ore shipments were second to those from Newfoundland. Hematite ore was mined and shipped directly from Schefferville; iron ore concentrates were shipped from Gagnon, and pelletized concentrates from Hilton mines. Pig iron or remelt iron was a co-product of the smelting of ilmenite at Sorel, which also produced titanium dioxide slag.

Base metal mines were operated in Gaspé, Chibougamau, Mattagami, Nor-metal, Noranda, Val d'Or, Barraute, and the Eastern Townships. The ores containing copper, zinc and lead also contained gold, silver, selenium and tellurium. Some of the copper concentrates were shipped to Noranda Mines Limited for smelting, some zinc concentrates were processed at the plant of Canadian Electrolytic Zinc Limited, Valleyfield, and some concentrates were exported to foreign smelters. Nickel-copper concentrates were sent to Sudbury, Ont., for smelting. Molybdenum was shipped as molybdenum sulphide, molybdic oxide, and as ferro-molybdenum. Gold mines in northwestern Quebec continued to ship bullion bars to the Royal Canadian Mint for refining.

Eastern Townships shipped 1,340,000 tons or 90 p.c. of the Canadian output of asbestos. Much of the asbestos fibre was exported for the manufacture of brake linings, asbestos cloth, shingles and other products. Lithia was shipped

from stockpile at a plant closed by a prolonged labour strike; quartz or silica was used by the glass and pottery industry and feldspar was consumed by the ceramics industry.

Structural materials were valued at \$135,590,125 in 1966 including cement valued at \$47,872,474 and brick, tile, pottery and others valued at \$6,278,308.

Ontario. Mineral output in Ontario in 1966 was adversely affected by a labour strike at the plants of the International Nickel Company of Canada Ltd. Recoverable metals shipped were: copper, 202,975 tons; lead, 1,985 tons; nickel, 160,212 tons; and zinc, 82,394 tons. The new concentrator of Texas Gulf Sulphur Company in the Timmins area began operating in November 1966. When this plant reaches its capacity of 9,000 tons of copper-zinc-silver ore a day it will be the largest producer of silver in Canada. Gold mines in the Porcupine, Kirkland Lake, Red Lake and Larder Lake areas operated under difficult conditions with rising costs but a fixed price for their product. The platinum group metals—platinum, palladium, osmium, iridium, rhodium and ruthenium—are recovered from the nickel-copper ores of the Sudbury area. Selenium and tellurium are also by-products of these ores. Pyrite and pyrrhotite occurring with the nickel-copper sulphides at Sudbury are processed to produce a by-product, iron oxide calcine, which is used to feed the furnaces at the steel plants. The iron mines at Atikokan, Wawa, Kirkland Lake, Capreol and Marmora shipped some 8,000,000 tons during 1966. The lessened demand for

*One of the newer mines in the Atlantic area is located near Bathurst, N.B.
Its ore contains silver, lead, zinc and copper.*



uranium reduced the value of shipments to \$42,758,135. Thorium and yttrium were by-products of the uranium mines. Yttrium oxide is used in the production of colour television tubes.

Salt was the most important non-metallic mineral produced in Ontario. Rock salt mines and brine wells were operated in the Windsor-Sarnia-Goderich area. Nepheline syenite valued at \$4,109,744 was shipped from the Lakefield area to the ceramics industries. Talc, a very soft mineral used for fillers, was mined in the Madoc district.

Southwestern Ontario, where petroleum production began nearly a century ago, continued to produce oil and natural gas. The construction industry required \$25,000,000 worth of brick, tile, and other clay products from the Ontario plants and the cement plants supplied 3,242,591 tons of their products. Industrial and chemical plants were the major consumers of the 1,078,350 tons shipped by the lime kilns.

Manitoba. The Flin Flon area of Manitoba produced copper, gold, silver, lead, zinc and cadmium and, at Thompson, International Nickel recovered

Since the late 1940s large capital expenditures have been made for oil pipeline construction. The Interprovincial system carries crude oil eastward from Edmonton, Alta., receiving and discharging oil at various locations. The Trans-Mountain system operates similarly westward. Supplying these two trunk lines are pipeline systems funnelling oil from hundreds of fields into storage tanks at the pipeline terminals. Most of these are in Alberta because of the rich oil resources of that province.



nickel, copper and the usual by-products. Sherritt Gordon Mines Ltd. at Lynn Lake shipped nickel "concentrates" to the refinery at Fort Saskatchewan, Alta., and copper concentrates to the smelter at Flin Flon. The total value of metallic minerals amounted to \$142,775,326 in 1966. There were three producers of gypsum. Salt produced from brine wells amounted to 27,069 tons. Peat moss was exported for horticultural uses. The southwestern area of the province yielded 5,230,712 bbl. of crude petroleum. Structural materials were valued at \$20,872,627.

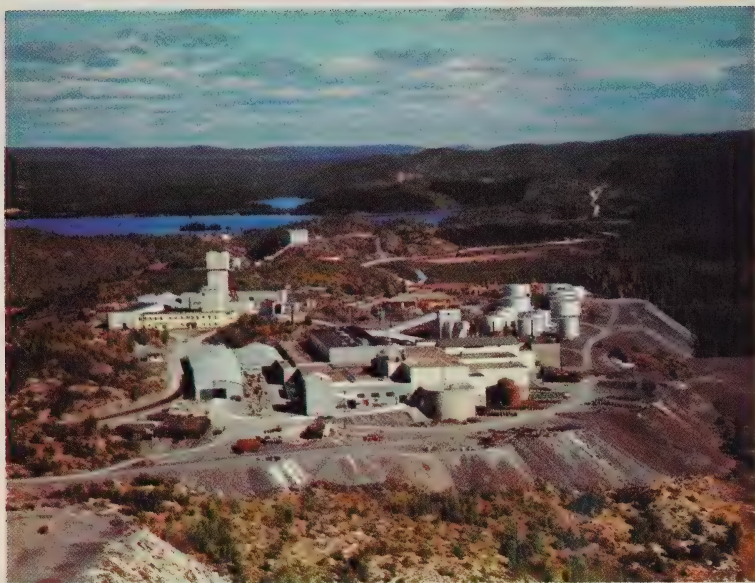
Saskatchewan. The Flin Flon area straddles the Manitoba-Saskatchewan border and most of Saskatchewan's metal output is in that area. The Beaverlodge area shipped uranium (U_3O_8) valued at \$11,576,652 during the year. Potash production made headlines as the shipments increased from \$56,000,000 in 1965 to \$62,664,666 in 1966. Over 2,000,000 tons of this fertilizer material filled long freight trains headed for export ports. Three firms were producing potash and five more deposits were being developed at an anticipated expenditure of \$400,000,000.

Lignite coal was produced by strip mining in the southern areas. Natural gas and by-products were valued at \$8,391,536. Crude petroleum reached \$212,723,748 in value. Clay products were valued at \$1,395,489 and cement, sand and gravel at \$11,448,090.

Alberta. Most of Alberta's mineral production is from fossil or mineral fuels. Natural gas production exceeded 1,090,600,000 Mcf. in 1966 and by-products were valued at \$94,116,979. Over 200,000,000 bbl. of crude oil came from Alberta wells. Development of the Athabasca bituminous sands continued. Elemental sulphur was a by-product when the hydrogen sulphide was removed from the sour gas. Sulphur shipments amounted to 1,933,920 tons.

British Columbia. Metal output of British Columbia in 1966 was valued at \$193,359,884, being mainly products of the silver-lead-zinc smelter and refinery operated by Cominco Ltd. at Trail. Export of copper concentrates to Japan and the United States increased during the year and most of the iron ore concentrates produced in the province were shipped to Japan. Molybdenum shipments were double those of 1965 and, when the new molybdenum mines being developed are operating, Canada will be a major world producer. British Columbia was Canada's only producer of antimony, indium and tin, which are found in the silver-lead-zinc ores at Kimberley. Asbestos was mined at the mountain top at Cassiar; barite was shipped to the grinding plants in Alberta; peat moss was harvested on the Fraser River delta; sulphuric acid was made from roasting sulphide ores at Trail and Kimberley; and elemental sulphur was recovered from sour gas at Taylor Flats. Coal, oil and gas had a total value of \$65,928,098 and structural materials a value of \$46,706,605.

The Territories. Placer gold production in the Yukon declined during 1966 and a greater decline is expected since the dredgers that had been operating in the Dawson area for many years ceased work in 1966. United Keno Hill Mines Ltd. operated silver-lead-zinc mines at Elsa. The concentrates were trucked to Whitehorse, then sent by rail to Skagway, Alaska, where they were shipped by water to the smelter. A small tonnage of coal was mined at Carmacks for consumption at Mayo, Elsa and other Yukon locations.



The uranium mine and mill at Beaverlodge, northern Saskatchewan. Ontario and Saskatchewan are the only provinces producing uranium in Canada. Production in 1966 was 7,864,000 lb. valued at \$54,000,000, of which about one quarter came from Beaverlodge.

Gold is produced at Yellowknife and farther north at Discovery and Tundra mines. Port Radium area on Great Bear Lake is an important source of silver. Quantities of ore were shipped in 1966 from the large lead-zinc Pine Point mine on the south shore of Great Slave Lake and small quantities of copper, cadmium, gas and petroleum were also produced.

Mineral Production of Canada, by Province, 1964-66

Province or Territory	1964		1965		1966	
	\$'000	p.c.	\$'000	p.c.	\$'000	p.c.
Newfoundland	182,153	5.4	207,558	5.5	244,020	6.1
Prince Edward Island	831	0.1	599	0.1	2,757	0.1
Nova Scotia	66,074	2.0	70,772	1.9	85,417	2.2
New Brunswick	48,677	1.4	82,158	2.2	90,221	2.3
Quebec	684,583	20.2	715,901	19.1	762,945	19.2
Ontario	904,583	26.6	992,789	26.5	957,858	24.1
Manitoba	173,873	5.1	182,866	4.8	179,241	4.5
Saskatchewan	292,374	8.6	328,167	8.8	349,304	8.8
Alberta	735,896	21.7	794,171	21.2	846,679	21.3
British Columbia	268,659	7.9	279,633	7.5	330,844	8.3
Yukon Territory	15,204	0.5	13,401	0.3	11,976	0.3
Northwest Territories	18,065	0.5	77,456	2.1	111,220	2.8
Canada	3,390,972	100.0	3,745,471	100.0	3,972,481	100.0

Quantity and Value of Mineral Production, 1965 and 1966

Mineral	1965		1966	
	Quantity	Value	Quantity	Value
		\$		\$
Metallics		1,907,575,899¹		1,984,372,572¹
Antimony lb.	1,301,787	689,947	1,405,681	745,011
Bismuth "	428,759	1,195,472	525,659	1,971,886
Cadmium "	1,755,925	4,881,471	3,236,862	8,351,103
Calcium "	159,434	152,848	249,179	245,125
Cobalt "	3,648,332	7,529,143	3,511,169	7,107,963
Columbium (Cb ₂ O ₅) "	2,333,967	2,528,051	2,637,997	3,182,170
Copper "	1,015,753,279	380,951,781	1,012,152,458	453,523,980
Gold troy oz.	3,606,031	136,051,943	3,319,474	125,177,364
Iron ore ton	39,958,936	413,064,861	40,690,723	431,659,083
Iron, remelt "	384,520	18,171,713	..	17,421,215
Lead lb.	583,614,989	90,460,323	599,244,120	89,527,072
Magnesium "	20,216,369	6,067,057	13,445,701	4,175,743
Molybdenum "	9,557,191	16,730,792	20,596,044	34,670,593
Nickel "	518,364,019	430,402,105	447,219,823	377,479,471
Platinum, group troy oz.	463,127	36,109,799	396,059	32,370,064
Selenium lb.	512,077	2,483,573	575,482	2,791,087
Silver troy oz.	32,272,464	45,181,450	33,417,874	46,751,605
Tellurium lb.	69,794	453,661	72,239	469,553
Thorium . . . . . "	..	..	87,393	210,528
Tin "	377,207	725,554	710,752	916,870
Uranium (U ₃ O ₈) "	8,885,213	62,361,377	7,863,690	54,334,787
Zinc "	1,644,070,657	248,254,768	1,928,212,425	291,160,076
Non-metallics		327,238,901¹		363,387,717¹
Arsenious oxide lb.	403,011	13,150	701,537	35,610
Asbestos ton	1,388,212	146,188,473	1,489,055	163,654,863
Barite "	203,025	2,167,006	221,376	2,199,054
Diatomite "	82	4,420	70	3,755
Feldspar "	10,904	252,868	10,924	254,714
Fluorspar "	..	2,679,862	..	1,895,754
Gemstones lb.	71,129	16,355	11,633	13,225
Gypsum ton	6,305,629	12,533,384	5,976,164	12,312,220
Iron oxides "	309	13,879	390	10,199
Lithia lb.	1,013,565	1,141,426	253,566	260,611
Magnesitic dolomite and brucite ton	..	4,010,927	..	3,948,599
Mica lb.	547,611	25,414	540,720	18,415
Nepheline syenite ton	339,982	3,415,387	366,696	4,109,744
Peat Moss "	287,845	8,982,979	284,572	7,187,254
Potash (K ₂ O) "	1,491,301	55,970,527	1,990,053	62,664,666
Pyrite, pyrrhotite "	382,177	1,285,252	326,954	1,139,141
Quartz "	2,433,685	5,123,942	2,299,660	5,514,041
Salt "	4,584,096	23,985,844	4,492,034	23,846,188
Soapstone, talc, pyrophyllite "	52,837	762,302	70,144	1,036,450
Sodium sulphate "	345,469	5,527,281	405,314	6,471,795
Sulphur, in smelter gas "	444,758	4,317,362	500,338	6,050,750
Sulphur, elemental "	2,068,394	26,394,595	2,041,528	40,253,685
Titanium dioxide, etc. "	410,255	22,425,094	..	20,505,484
Mineral Fuels		1,076,494,117		1,150,611,731
Coal ton	11,588,616	75,901,126	11,391,569	81,559,794
Natural gas Mcf.	1,442,448,070	186,625,459	1,341,833,195	177,631,340
Natural gas by-products bbl.	..	92,377,863	..	99,908,218
Petroleum, crude "	296,418,914	721,589,669	320,542,794	791,512,379
Structural Materials		434,161,904		474,108,899
Clay products "	..	42,837,582	..	42,956,085
Cement ton	8,427,702	142,523,169	8,930,552	156,300,622
Lime "	1,620,404	20,134,308	1,555,037	18,339,724
Sand and gravel "	205,260,264	133,819,824	217,238,710	151,525,102
Stone "	76,758,105	94,847,021	84,874,387	104,987,366
Grand Totals		3,745,470,821¹		3,972,480,919¹

¹Includes some small items not specified.

Canada's Mineral Fuels

Petroleum and Natural Gas. Oil has a long, if sporadic, history in Canada. The first oil deposit successfully exploited in North America (1858) was situated at Oil Springs in southwestern Ontario. Ontario remained the only producing province until oil was discovered in 1910 at Moncton, N.B. These events made Canada a technological leader, although not a significant producer, until the important 1936 discovery of oil in the Turner Valley near Calgary. The Leduc oil discovery in Alberta in 1947 was the start of Canada's present-day oil industry.

Generally, natural gas is found in the same region as oil deposits. These fuels constitute one of Canada's major resources; they are piped to consumer markets throughout North America. In 1966, total net crude oil production plus condensates amounted to 320,542,794 bbl. and gas production to 1,341,833,195 Mcf. The Prairie Provinces account for most of the oil and gas production. In 1966, Alberta led with 63 p.c. of the oil output, followed by Saskatchewan with 29 p.c. and British Columbia with 5 p.c.; there were small outputs in Ontario, the Northwest Territories and New Brunswick. Alberta also accounted for 84 p.c. of the gas output, Saskatchewan for 3 p.c. and British Columbia for 12 p.c.

Alberta's newest major oil reservoir was opened up in the Rainbow Lake area, some 400 air miles northwest of Edmonton, in 1965.



Exploration for oil and other mineral wealth has moved to the High Arctic. Members of the federal Polar Continental Shelf Project team drill through the ice to permit the lowering of a heat probe to the ocean floor, as they gather vital data required for the task of assessing the region's potential.



Exploration and development continued to yield favourable results. In 1966, crude oil reserves increased by one billion barrels to a total of 7,860,000,000 bbl.; reserves of gas liquids rose by 260,000,000 bbl. to 1,260,000,000 bbl. As a result, total liquid hydrocarbon reserves amounted to 9,000,000,000 bbl. The 1966 natural gas reserve estimates show a total of 47,997,000,000 Mcf.

Expenditures by the oil and gas producers of Canada increased by 5 p.c. in 1966 to \$1,054,400,000. Exploration expenditures, consisting of drilling and land costs, accounted for \$447,432,000, an increase of 3 p.c., while development drilling expenditures fell 10 p.c. to \$124,620,000.

Total sales of petroleum products amounted to 390,884,553 bbl. in 1965, composed of 128,542,450 bbl. of gasoline, 133,606,707 bbl. of middle distillate fuel oils, 78,174,738 bbl. of heavy fuel oils and 50,560,658 bbl. of lubricating oils and grease, asphalt and other products. Between 1960 and 1966, Canadian

Canada has a major gas processing industry, located mainly in Alberta, which extracts noxious components undesirable for natural gas consumers but are in themselves valuable, such as propane, butane and pentanes plus an elemental sulphur. In 1966 there were 116 gas plants in Canada, 102 of them in Alberta.



consumption recorded average annual gains of 5 p.c. in gasoline, 5.5 p.c. in middle distillates, and 14 p.c. in fuel oil sales. Crude oil, one of Canada's most important export commodities, is exported to the United States alone. Such shipments in 1965 amounted to 107,657,950 bbl.

In 1966, natural gas sales in all provinces were higher than they had been in any previous year. The average rate of increase of sales of 11 p.c. over the past five years was maintained in 1966. Domestic natural gas sales were 635,514,622 Mcf. valued at \$416,200,000. Industrial consumers took 51 p.c. of all sales, commercial 18 p.c., and residential 31 p.c. The growth in exports of natural gas to the United States continued with a 7-p.c. increase in 1966 to 431,818,191 Mcf. Imports, although relatively small, increased from 18,000,000 Mcf. in 1965 to 45,000,000 Mcf. in 1966, most of the additional imports going to Ontario.

The introduction of the oil pipeline in the early 1950s eventually allowed Canada's continental land-locked sources of petroleum to serve markets on Canada's West Coast and as far east as Montreal. The construction of gas pipelines from northeastern British Columbia and Alberta to these markets in 1957 and 1958 gave Canada's rich supplies of natural gas a national importance.

The shipping by pipeline of crude oil and natural gas now constitutes a major component of the transport industry; in 1966, 51,824,000,000 ton-miles were carried by oil and natural gas pipelines.

Coal. Before 1945 coal was of major importance in most countries, including Canada, for use as a heating and motive fuel. Since that time, fuel oils and natural gas have replaced it and the importance of the Canadian coal industry has declined sharply.

In the last several years, subsidy payments have been made by the Federal Government to assist the movement of coal to markets. The cost of these transportation subsidies in 1965 amounted to \$26,700,000, an increase of \$9,500,000 over subsidies of the previous year. In 1966, the Donald Report recommended the adoption of a new policy for the Nova Scotia coal industry. It suggested that all mine production be phased out over the next 15 years. A Crown corporation would be responsible for the rehabilitation and operation of the Dosco coal mines at reduced levels of production; new industry would be encouraged in such areas as Cape Breton with \$45,000,000 provided by the Federal Government and \$10,000,000 available from provincial sources.

The present position of the Canadian coal industry varies according to regional factors. The maritime industry suffers from rising costs and shrinking markets; Alberta and Saskatchewan, with low-cost, open-pit sub-bituminous and lignite mines, supply the growing demand of thermal electric installations; and northwestern Alberta and British Columbia may capture an expanding coking coal market in Japan.

Total Canadian production in 1965 was 11,600,000 short tons, an increase of 2.3 p.c. over production in 1964. Total value of production in 1965 amounted to \$75,900,000, up 4.3 p.c. above that recorded in 1964. In 1966, production fell by 1.7 p.c. from that of 1965. Imports, 90 p.c. of which go to Ontario steel mills and thermal generation operations, amounted to 15,500,000 tons; exports to only 1,200,000 tons.

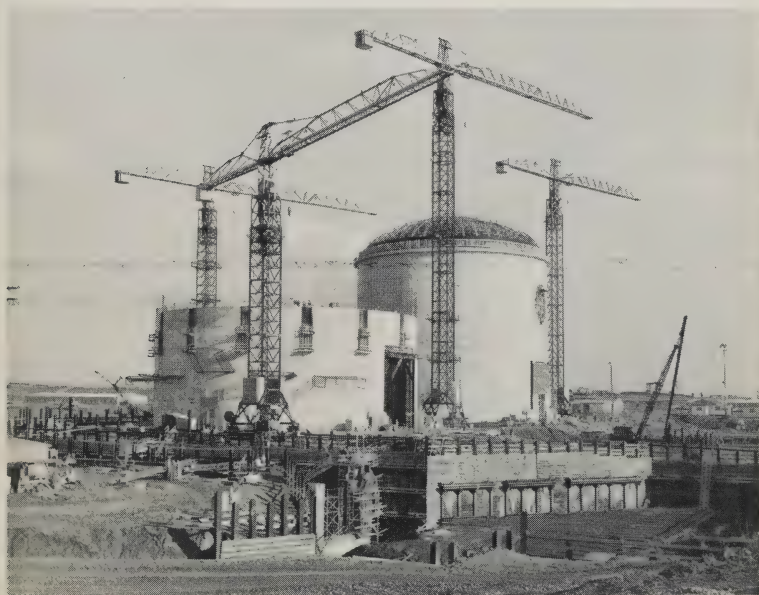
Energy

Canada's electric power development has undergone remarkable and sustained growth since the beginning of this century. A modest 133,000 kw. of generating capacity in 1900 rose to over 33,000,000 kw. by the end of 1967, distributed by provinces as follows.

Installed Hydro- and Thermal-Electric Generating Capacity, by Province, as at Dec. 31, 1967

Province or Territory	Hydro	Thermal	Total
	kw.	kw.	kw.
Newfoundland	691,726	131,310	823,036
Prince Edward Island	—	57,391	57,391
Nova Scotia	151,561	543,593	695,154
New Brunswick	261,636	554,585	816,221
Quebec	11,007,246	596,135	11,603,381
Ontario	6,337,746	3,951,767	10,289,513
Manitoba	1,074,350	354,929	1,429,279
Saskatchewan	398,940	670,257	1,069,197
Alberta	615,700	1,433,775	2,049,475
British Columbia	2,794,181	1,318,724	4,112,905
Yukon Territory	28,190	3,640	31,830
Northwest Territories	35,360	23,424	58,784
Canada	23,396,636	9,639,530	33,036,166

The Pickering nuclear power station under construction near Toronto will have a capacity of 2,000,000 kw. when completed, making it one of the largest in the world. Ontario's first nuclear station went into commercial production early in 1967.



Although water power traditionally has been and still is the main source of electric energy in Canada, thermal sources some day will undoubtedly become the main supplier. The choice between development of a hydro-electric power site and construction of a thermal generating station must take into account a number of complex considerations, the most important of which are economic. In the case of a hydro-electric project, the heavy capital costs involved in construction are offset by maintenance and operating costs considerably lower than those for a thermal plant. The long life of a hydro plant and the dependability and flexibility of operation in meeting varying loads are added advantages. Also important is the fact that water is a renewable resource. The thermal station, on the other hand, can be located close to the demand area, with a consequent saving in transmission costs.

The marked trend to thermal development which became apparent in the 1950s can be explained in part by the fact that, by that time in many parts of Canada, most of the hydro-electric sites within economic transmission distance of load centres had been developed and planners had to turn to other sources of electric energy. More recently, however, advances in extra-high-voltage transmission techniques are providing a renewed impetus to the development of hydro power sites previously considered too remote.

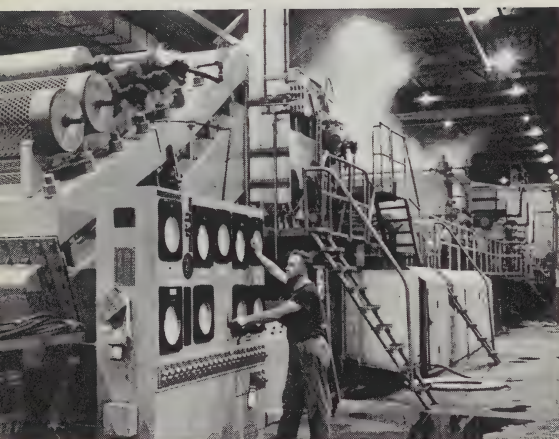
Water Power Resources and Developments. Substantial amounts of water power have been developed in all provinces except Prince Edward Island, where there are no large streams. The resources of *Newfoundland* are estimated to be considerable; topography and run-off favour hydro-electric power development. A large part of the installed capacity serves the pulp and paper industry. The water power of *Nova Scotia* and *New Brunswick*, small in comparison with those of other provinces, still is a valuable source of energy. The numerous moderate-sized rivers provide power for the cities and potential for developing the timber and mineral resources. *Quebec* is richest in water power resources; with over 40 p.c. of the total for Canada, and has the most developed capacity. The largest single hydro-electric installation in Canada is Hydro-Québec's 1,574,260 kw. Beauharnois development on the St. Lawrence River. Others are the Bersimis I development, with a capacity of 912,000 kw., and the 742,500 kw. Chute des Passes plant of the Aluminum Company of Canada, Ltd. Potentially largest will be Hydro-Québec's Manicouagan-Outardes project, to produce 5,800,000 kw. on the two rivers. Almost all of the sizable water power potential in *Ontario* within easy reach of demand centres has been developed and planners are looking to more remote sites. Most of the hydro-electric power produced in the province comes from The Hydro-Electric Power Commission of Ontario, the largest public utility in Canada. Its chief stations are on the Niagara River at Queenston, with total generating capacity of 1,804,200 kw. *Manitoba* is the most generously endowed of the Prairie Provinces, with immense potential capabilities on the Winnipeg, Churchill, Nelson, and Saskatchewan Rivers. *Saskatchewan's* central and northern parts can eventually be supplied from the Churchill, Fond du Lac, and Saskatchewan Rivers. In *Alberta*, most of the developments are located on the Bow River and its tributaries. In 1965 the first unit of the Brazeau River's Big Bend hydro project went into service providing a 144,000 kw. capacity. *British Columbia* ranks second in terms of available potential and developed water power resources, and is third in generating



First commercial production of electric power from the \$800,000,000 Churchill Falls power development in Labrador is expected in 1972. The generating station, producing 4,500,000 kw. will be one of the world's most powerful, with a capability almost equal to that of Quebec's entire Manicouagan-Outardes complex.



Newfoundland's Premier Smallwood opens the new Churchill River Bridge in Labrador. The bridge is part of the vast Churchill Falls development. On his left is Winston Churchill, grandson of the famous British statesman for whom the river and falls are named.



All life and activity today is dependent on electric power and the availability of great quantities of power at moderate cost to the consumer has been a major contributor to the industrial progress of the country and to the ease and comfort of living in it. Industry uses about 55 p.c. of the power produced, the heaviest consumers being the pulp and paper and the smelting and refining industries. About 21 p.c. is used in homes and on farms and 15 p.c. by commercial consumers.

capacity installed. The current development of the Peace and Columbia Rivers will provide immense power resources in the future. In the *Yukon Territory* and the *Northwest Territories*, water power is of especial importance in the development of mining areas, such as Mayo and Yellowknife. In the Yukon, most resources are on the Yukon River and its tributaries. Although not yet thoroughly surveyed, the rivers flowing into Great Slave Lake and the South Nahanni River which drains into the Mackenzie have a considerable potential.

Conventional Thermal Power. About 85 p.c. of all conventional thermal power generating equipment in Canada is driven by steam turbines and the remainder of the load is carried by gas turbine and internal combustion equipment. The table on page 115 shows that the provinces of Prince Edward Island, Nova Scotia, Saskatchewan and Alberta depend on thermal stations for most of their power requirements and that New Brunswick has slightly more thermal than hydro. Although Ontario at present has more hydro capacity than thermal, by the early 1970s the situation will be reversed. The abundance of Quebec's water power wealth has so far limited the application of thermal power in that province to specific local use but here too there is growing emphasis on thermal development. Manitoba and British Columbia each have substantial amounts of thermal capacity but the current emphasis is still on hydro development.

Nuclear Thermal Power. Development of commercial electric power generation in thermal plants using the heat generated by nuclear reactors is one of the major contributions of Canada to energy resource technology. This development has centred around the CANDU reactor which uses a natural uranium fuel with a heavy water moderator. Heavy water as a moderator provides a high energy yield and ease in handling spent fuel. The first such reactor, which was of an experimental nature, went into use in 1962 at Rolphton, Ontario, with a capacity of 20,000 kw. Since then, three major nuclear projects have been undertaken. The first nuclear plant is situated at Douglas Point on Lake Huron. It consists of a single unit, completed in 1967, with a capacity of 200,000 kw. The second project is a four-unit 2,000,000 kw. capacity plant being built at Pickering east of Toronto. The four units are scheduled for service at the rate of one a year during the period 1970-73. Both the Douglas Point and Pickering plants use heavy water as a coolant. The third nuclear plant is to be a 250,000 kw. unit situated at Pointe aux Roches, Quebec, using boiling light water as a coolant.

Power Generation and Utilization. In 1966, Canada's generating facilities produced 158,135,232,000 kwh. of electric energy—82 p.c. in hydro-electric stations and the remainder in thermal stations. Energy exported to the United States exceeded by 1,252,471,000 kwh. the energy imported, bringing the total available to Canadian users to 156,430,502,000 kwh.

Industry uses about 55 p.c. of the total energy made available in Canada, domestic and farm use accounts for 21 p.c. and commercial customers 15 p.c. Average domestic and farm consumption continues to rise year by year, being 5,911 kwh. in 1966 and ranging from a low of 2,559 kwh. in Prince Edward Island to a high of 7,637 kwh. in Manitoba. The average annual bill for such use was \$83.43; for farm customers alone, it was \$134.22.

Business and Industry



The Canadian Economy

Canada's economy advanced strongly again in 1966 as continued high levels of demand in the domestic sector, together with buoyant conditions abroad, pushed gross national product to a level of \$57,700,000,000, almost 11 p.c. above that of the year 1965. This rise in demand accompanied by continuing high levels of employment resulted in pressures on costs and on prices. Thus, prices advanced by 4.6 p.c., reducing the 11-p.c. gain in gross national product to a gain of about 6 p.c. in real terms. This compares with an increase of nearly 10 p.c. in gross national product in 1965, which was reduced to a volume gain of about 7 p.c. by price advances of 2.8 p.c.

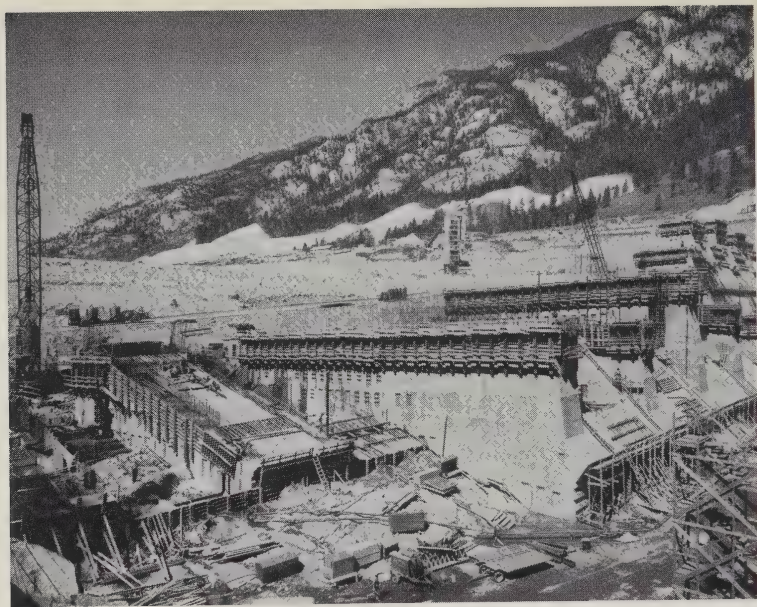
Much of this 11-p.c. gain occurred in the first quarter of 1966, when gross national product increased by 4.5 p.c.—the strongest quarterly advance in the current expansion. Although increases in demand were widespread in that first quarter, exports were particularly strong. The quarter-to-quarter gains in GNP for the remainder of the year were more moderate.

The year as a whole saw gains over a wide range of final expenditure categories. For the third successive year, business spending on plant and equipment was a dominant factor, with investment in these categories increasing by nearly 18 p.c. in 1966 compared with advances of 20 p.c. in each of the two preceding years. However, investment in housing and in business inventories did not show significant movements. For the second successive year, outlays on new housing increased only fractionally, while investment on business inventories was maintained at a rate only slightly less than that of 1965.

Government expenditures on goods and services, including capital goods, increased by 16 p.c. An important part of the over-all changes was caused by retroactive increases in wages and salaries. Entirely as a result of the Canada and Quebec pension plan contributions, the surplus, on a national accounts basis, for all levels of government combined increased somewhat in 1966.

Consumer spending rose by almost 9 p.c. in 1966; with personal disposable income increasing by 9.5 p.c., personal net saving rose. Prices of consumer goods increased by 3.5 p.c. in 1966, as compared with a rise of 2 p.c. in 1965. Although over-all consumer demand was strong in 1966, there was no rise from 1965 in spending on automobiles, in contrast to marked increases in each of the four preceding years. Durable goods spending as a whole rose by 4 p.c. Outlays on non-durable goods and services increased by 9.5 p.c. and 9 p.c. respectively.

External demand for Canadian goods increased by some 16 p.c. in 1966, in contrast to a growth of a little better than 6.5 p.c. in 1965. Exports of wheat to countries such as the Soviet Union and mainland China, coupled with a gain in exports of automotive products mainly to the United States, together accounted for a large part of the increase in merchandise exports. Imports also showed a substantial rise, increasing by 15 p.c. The Jan. 1, 1965, Canada-United States Automotive Agreement resulted in a swelling in imports of automotive products. Investment outlays caused a further significant increase in imports of machinery and equipment.



Arrow Lake Dam is one of three storage dams being built on the Columbia River in British Columbia under the terms of the treaty which entitles Canada to half of the power benefits accruing to the United States and half the value of the flood damage prevented in the United States by the regulation of the water stored behind the dams. All three dams are required to be in operation by 1973.

Increase in Labour Income. Turning to the income side, the salient features of the year were an increase in labour income of nearly 13 p.c. that was one of the largest year-to-year gains since 1951, a 34-p.c. rise in farm income resulting from a record western grain crop, and a fractional decline in corporation profits, following increases in this component over the past five successive years.

The expansion in expenditures and incomes was accompanied by increases in the labour force and in employment. A 5-p.c. increase in the non-agricultural labour force was made possible by a sizable increase in immigration, and by increasing participation rates coupled with a decline in agricultural employment. With non-agricultural employment rising by 5.5 p.c., the unemployment rate declined from 3.9 p.c. in 1965 to 3.6 p.c. in 1966.

Wage demands, vigorously pressed in various industries and industrial disputes, were a marked feature of the year and led to work stoppages causing a loss of close to 5,000,000 man-working days, more than twice those in 1965. The tight employment market, on both supply and demand sides, caused sharp wage rate increases compared with productivity gains. In the commercial non-agricultural sector, the increase in output per person employed was 1.8 p.c. as compared with 2.5 p.c. in 1965 and 3 p.c. in the three preceding years. Thus, low productivity gains coupled with sharp increases in wage rates resulted in a notable rise in unit labour costs.

Source of Personal Income, 1950 and 1961-66

Source	1950	1961	1962	1963	1964	1965	1966
\$'000,000							
Wages, salaries and supplementary labour income	8,629	18,996	20,233	21,547	23,433	26,033	29,324
Less: Employer and employee contributions to social insurance and government pension funds	-256	-787	-812	-852	-912	-959	-1,816
Military pay and allowances	137	550	586	598	583	587	621
Net income received by farm operators from farm production ¹	1,156	978	1,490	1,582	1,353	1,689	2,048
Net income of non-farm unincorporated business	1,439	2,274	2,401	2,551	2,720	2,877	2,949
Interest, dividends and net rental income of persons	1,268	3,030	3,305	3,616	3,799	4,129	4,536
Transfer payments to persons: From government (excluding interest)	1,030	3,441	3,725	3,848	4,133	4,502	5,006
Charitable contributions by corporations	25	40	44	44	44	44	44
Personal Income	13,428	28,522	30,972	32,934	35,153	38,902	42,712

¹Excludes the adjustment to take account of accrued net earnings arising out of the operations of the Canadian Wheat Board.

Personal expenditures on goods and services increased by 42 p.c. between 1961 and 1966 and the shopping mall is a recent innovation to attract the consumer dollar. One of the largest enclosed shopping centres in Canada is Yorkdale in Toronto. In its 1,300,000 sq. feet of space, 108 merchants, including two major department stores, sell goods of every kind and banks, restaurants and many other services are provided for the shopper.



Disposition of Personal Income, 1950 and 1961-66

Disposition	1950	1961	1962	1963	1964	1965	1966
\$'000,000							
Personal Direct Taxes—							
Income taxes	612	2,125	2,316	2,487	2,957	3,355	3,854
Succession duties and estate taxes	66	146	165	171	179	209	228
Miscellaneous	62	240	248	258	292	348	352
Total Personal Direct Taxes	740	2,511	2,729	2,916	3,428	3,912	4,434
Personal Expenditure on Consumer Goods and Services—							
Non-durable goods	6,711	12,178	12,965	13,518	14,389	15,434	16,913
Durable goods	1,451	2,716	2,960	3,246	3,592	4,001	4,169
Services	3,864	9,572	10,001	10,723	11,685	12,628	13,758
Total Personal Expenditure on Consumer Goods and Services	12,026	24,466	25,926	27,487	29,666	32,063	34,840
Personal Saving—							
Personal saving excluding farm inventory change	583	1,823	2,141	2,220	2,158	2,871	3,289
Value of physical change in farm inventories	79	-278	176	311	-99	56	149
Total Personal Saving	662	1,545	2,317	2,531	2,059	2,927	3,438
Total Personal Income	13,428	28,522	30,972	32,934	35,153	38,902	42,712
Personal Disposable Income ¹ . . .	12,688	26,011	28,243	30,018	31,725	34,990	38,278

¹ Personal income less total personal direct taxes.

Rise in Prices. Aggregate price change as measured by the implicit price index of gross national expenditure rose by 4.6 p.c. in 1966 as compared with 2.8 p.c. in 1965. Prices of personal expenditure, government expenditure and exports all showed significantly higher rates of increase in 1966 than in the preceding four years. Within personal expenditure there were strong increases in food prices, especially meat and dairy products. Prices associated with household services and education showed increases greater than 10 p.c., and the price of rents increased more than in recent years. In durables there were mixed offsetting movements leaving the implicit price index unchanged. Export prices rose substantially, but most of the price increases reflected world market conditions rather than cost pressures. Thus the 3-p.c. increase in export prices, coupled with an increase of less than 1 p.c. in import prices, indicated an improvement in the Canadian terms of trade.

Consumer expenditure increased by 8.5 p.c., the largest percentage increase since 1952. All three major components shared in the rise; expenditure on non-durables rose by 9.5 p.c., on durables by 4 p.c. and on services by 9 p.c. The percentage increases in expenditure on non-durables and on services were somewhat greater than those realized in 1965, although much of this reflected price rises rather than gains in real terms. In contrast, the gain in durables was the lowest since 1961. This was mainly due to an unchanged level of purchases of new and used cars after increases of 12 to 14.5 p.c. in the three preceding years.

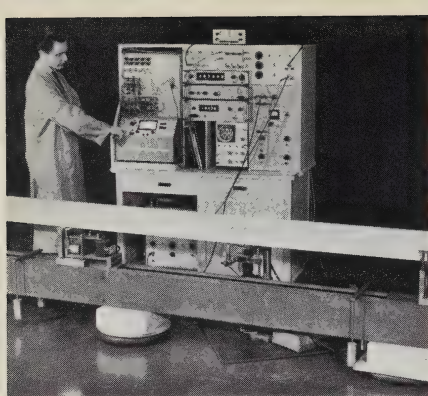
Capital Expenditures. Capital expenditures in 1966 amounted to \$12,200,000,000, 14.7 p.c. higher than in the previous year. Non-residential construction, and machinery and equipment outlays rose by 19.6 and 16.0 p.c. respectively, while outlays on new housing advanced by only 2.5 p.c.

Capital expenditures increased over 1965 estimates for all major industrial divisions apart from forestry. In manufacturing: the pulp, primary metals, electrical products, non-metallic minerals, petroleum and coal products, transportation equipment, rubber, and foods and beverage industries recorded advances, while the wood, textiles, printing and publishing, and chemical industries registered declines. Mining, electric power, gas and water utilities, and transportation industries made pronounced gains. Housing outlays were a significantly lower percentage of business capital spending in 1966 and mining machinery spending was a significantly higher percentage. The advent of colour television and work done on programs for satellite communication to provide telephone, live television and other telecommunication services to Canada's far north were some of the more glamorous expansion projects during 1966.

Housing expenditures at \$2,200,000,000 were little changed from 1965. Starts of single family units showed only a slight decrease but starts of apartment units dropped markedly. Altogether, housing starts dropped from 167,000 to 135,000 and completions increased from 153,000 to 162,000; dwellings under construction fell from 120,000 at the beginning of the year to 89,000 at year's end.

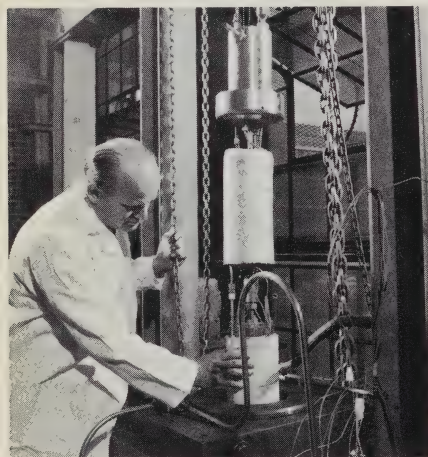
Converter aisle in the Falconbridge smelter at Sudbury, Ont. Two of the world's largest nickel companies—International Nickel and Falconbridge—together operate 15 mines, three smelters and a refinery in Ontario. Both are proceeding with expansion plans for mining and processing facilities which, by 1975, will increase Canadian nickel production capacity to 400,000 tons a year from about 275,000 tons in 1966.





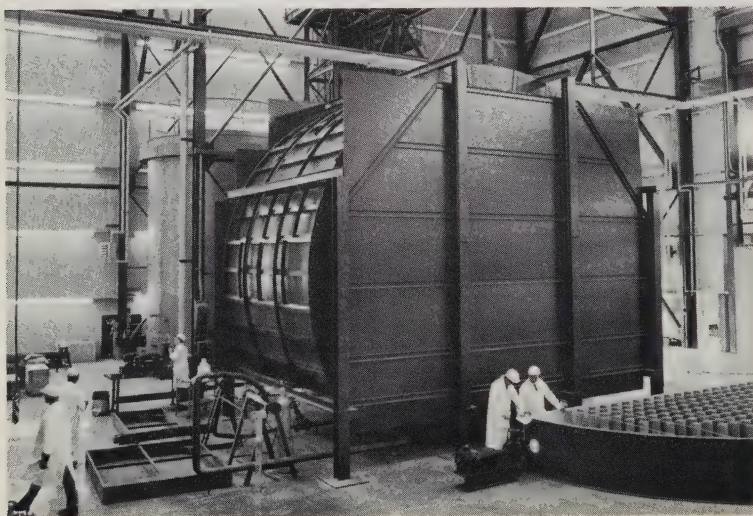
Federal Government expenditures on scientific research amounted to about \$463,000,000 in 1966-67, about 80 p.c. of it on direct research projects conducted by departments or agencies or by other organizations on contract.

An electronic vibration stress grader, developed by the federal Forest Products Laboratory, measures much more rapidly and accurately the strength and stiffness of lumber to be used as structural material than is possible by mechanical and visual means.



An engineer guides the inner reaction chamber into the pressure vessel of a hydrogenation pilot plant. The Mines Branch of the Department of Energy, Mines and Resources devotes much attention to the conversion of low-grade Canadian fuels into marketable commodities.

Components of nuclear power units are thoroughly tested in the development laboratory of the Power Projects Group of Atomic Energy of Canada Limited at Sheridan Park, Ont., where a full-scale model of the Pickering Nuclear Power Station is set up.



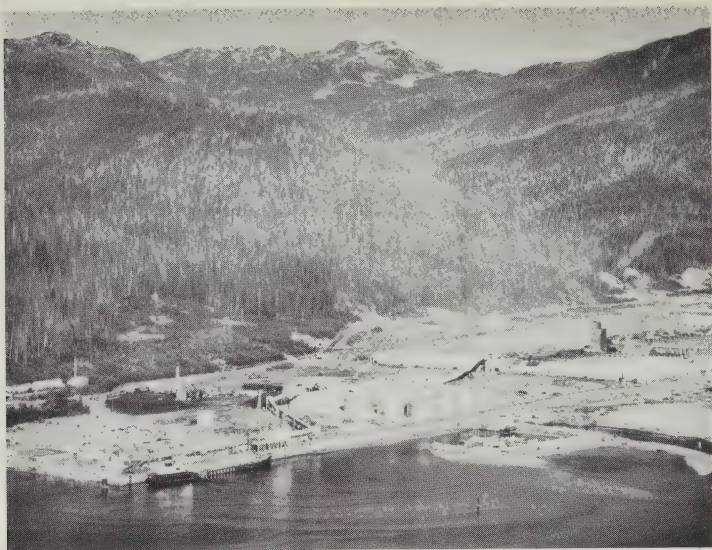
Statistics of mortgage loan approvals suggest that financing difficulties slowed down the pace of home building.

Investment in non-farm business inventories amounted to \$832,000,000 in 1966 compared with \$905,000,000 in 1965. About 60 p.c. of this accumulation was at the manufacturing level, especially in the durable goods-producing industries, and much of the latter was concentrated in the transportation industry. For manufacturing as a whole, the average stock-to-shipments ratio for 1966 was higher than the average for 1965. There were also moderate increases in the stocks of wholesale and retail traders where stock-to-sales ratios for the year were above the average of the current expansion.

Merchandise Balance. During 1966 the deficit in Canada's external account increased by \$72,000,000 on a national accounts basis. This deterioration resulted from a rise of \$178,000,000 in the deficit on non-merchandise trade, offsetting an improvement of \$106,000,000 in merchandise trade. There was a marked improvement in the current account balance with countries other than the United States and Britain but this failed to neutralize a larger deficit with the United States and a smaller balance with Britain.

Government Revenues and Expenditures. Both government revenues and expenditures showed strong increases in 1966. Total revenues of all levels of government combined rose 15 p.c., but over one third of this increase resulted from contributions to the Canada and Quebec pension plans, which became effective in January 1966. Aside from the pension plan receipts and with the exception of corporate income taxes, other government revenues increased sharply, mainly as a result of buoyant economic conditions. However, expenditures by the various levels of government combined rose even more than non-pension plan receipts. In particular, expenditures on goods and services rose by 16.5 p.c., with increases of 19 p.c. at the federal level and of 15 p.c. at the provincial-municipal level. Thus, the marginal increase of \$34,000,000 in the surplus for all levels of government combined was entirely attributable to the receipts from the pension plans. Excluding these, the federal surplus was reduced by \$444,000,000 to a surplus of \$124,000,000, while the combined provincial-municipal deficit was increased by \$236,000,000, reaching a total of \$558,000,000 for the year.

Higher Payrolls. Although payrolls were higher in all industries, those in the goods-producing industries rose more rapidly than in the service industries, while increases in the primary industries were somewhat less than the average. Within the goods-producing industrial group, manufacturing wages and salaries rose by 11.5 p.c., thus continuing the steady increase experienced in the past few years. The construction industry also continued to expand, with its payrolls rising by almost 25 p.c. This increase was partly due to a smaller seasonal decline in employment and partly to the larger proportion of engineering projects where hourly earnings are significantly higher than in other types of construction. The service-producing industries, responsible for about 58 p.c. of wage and salary payments in Canada, had income increases almost as high as the goods-producing industries but with somewhat higher employment gains and lesser gains in average weekly earnings. The payroll for government



Canada has many large industries located in isolated areas, requiring the establishment of their own townsites and employee services. The site of the aluminum smelter at Kitimat in northwestern British Columbia, which uses imported raw material, was chosen because of proximity to power potential and excellent deepsea anchorage, both necessary to its operation. The town now has a population of close to 10,000.

employees, which had shown relatively low gains in earlier years, showed increases greater than the average in 1966, 15 p.c. in federal non-military payments and 13 p.c. in provincial payments. The federal increase, however, partly reflects retroactive payments made in 1966 but pertaining to 1965.

Corporation Profits. Corporation profits (before taxes and before dividends paid abroad) remained virtually unchanged from the 1965 level. This is the first year since the current expansion began in 1961 that corporation profits failed to register an advance. While the level of profits remained stable in the first two quarters of the year, there were sharp movements in the second half, as a substantial decline in the third quarter was followed by a recovery of equal magnitude in the fourth quarter. Among industries, the profit movements for the year were very mixed. In the manufacturing group, the most pronounced movements were experienced by the petroleum and coal industry, with a gain of 25 p.c., and by the textile and paper industries, with declines of 24 and 23 p.c. respectively.

Record Grain Crop. Accrued net income of farm operators increased to \$2,204,000,000 in 1966, 34 p.c. over that of the year 1965. All components showed increases over the previous year's totals but the largest gain occurred in grain production. With expenses increasing by less than the rise in cash income, net income advanced by more than cash income. The value of the record 1966 grain crop at \$1,564,000,000 was 20 p.c. above the 1965 level and surpassed the previous record of \$1,381,000,000 in 1963 by 13 p.c.

National Income and Gross National Product, 1950 and 1961-66

Item	1950	1961	1962	1963	1964	1965	1966
\$'000,000							
Income							
Wages, salaries and supplementary labour income	8,629	18,996	20,233	21,547	23,433	26,033	29,324
Military pay and allowances	137	550	586	598	583	587	621
Corporation profits before taxes ¹	2,118	2,841	3,235	3,574	4,066	4,419	4,390
Rent, interest and miscellaneous investment income	890	2,670	2,832	3,078	3,262	3,554	3,903
Accrued net income of farm operators from farm production	1,322	1,008	1,496	1,721	1,464	1,645	2,204
Net income of non-farm unincorporated business including independent professional practitioners	1,439	2,274	2,401	2,551	2,720	2,877	2,949
Inventory valuation adjustment	-374	-89	-130	-200	-131	-325	-318
Net National Income at Factor Cost	14,161	28,250	30,653	32,869	35,397	38,790	43,073
Indirect taxes less subsidies	2,000	4,696	5,293	5,600	6,372	7,172	7,800
Capital consumption allowances and miscellaneous valuation adjustments	1,913	4,540	4,892	5,198	5,600	6,110	6,591
Residual error of estimate	-68	-15	-263	-243	24	26	274
Gross National Product at Market Prices	18,006	37,471	40,575	43,424	47,393	52,098	57,738

¹Excludes dividends paid to non-residents.

Gross National Expenditure, 1950 and 1961-66

Item	1950	1961	1962	1963	1964	1965	1966
\$'000,000							
Personal expenditure on consumer goods and services	12,026	24,466	25,926	27,487	29,666	32,063	34,840
Government expenditure on goods and services ¹	2,344	7,236	7,717	8,075	8,654	9,596	11,169
Business gross fixed capital formation ² :							
New residential construction	883	1,458	1,577	1,707	2,021	2,124	2,178
New non-residential construction	1,042	2,683	2,638	2,835	3,358	4,024	4,811
New machinery and equipment	1,423	2,494	2,745	3,049	3,724	4,503	5,225
Value of physical change in inventories:							
Non-farm business inventories	399	439	310	244	516	905	832
Farm inventories and grain in commercial channels	151	-409	222	291	-130	43	163
Exports of goods and services	4,183	7,631	8,259	9,111	10,578	11,265	13,073
Less: Imports of goods and services	-4,513	-8,542	-9,082	-9,618	-10,970	-12,400	-14,280
Residual error of estimate	68	15	263	243	-24	-25	-273
Gross National Expenditure at Market Prices	18,006	37,471	40,575	43,424	47,393	52,098	57,738

¹Includes outlays on new durable assets such as building and highway construction by government, other than government business enterprises; includes also net purchase of government commodity agencies.

²Includes capital expenditures by private and government business enterprise, private non-commercial institutions and outlays on new residential construction by individuals and business investors.



Two fast-growing cities in the Canadian west.

Calgary, situated high on the western steppe of the prairies in the shadow of the Rocky Mountains in Alberta, was not so long ago a modest agricultural centre. Now, surrounded by rich oil and gas fields, it has become a progressive city of industry and commerce. Like other Canadian cities, its area has extended and its population has grown, increasing by almost 65 p.c. in the past ten years.



Vancouver is the nation's third largest city, having a population of about 900,000. This great city in its magnificent setting, with its moderate pleasant climate, flourishing in the field of international trade and becoming constantly more diverse in its industrial and commercial activities, holds a unique attraction for young and old alike.

Productivity Trends

Current concern about the productivity performance of the Canadian economy reflects the awareness of government, industry and organized labour — and now, to an increasing extent, of the public at large — that the potential for future economic growth and prosperity depends not merely on increases in the supply of productive resources but even more basically on the effectiveness with which such resources are used, that is, on their productivity.

In recognition of the need for up-to-date information on this important topic, the Dominion Bureau of Statistics now publishes annual indexes of output per person employed and per man-hour for the commercial economy and a number of its significant components such as the goods- and service-producing sectors, agriculture and the commercial non-agricultural industries, and manufacturing. The measures of output used in the indexes are those of the unduplicated output, measured in 1949 dollars, of individual industries located in Canada, which are described elsewhere in this handbook, while the labour input measures are assembled from a variety of sources, among which the Bureau's monthly household and establishment surveys of employment and man-hours are the most important.

Although these productivity indexes relate output to the corresponding labour inputs, they do not measure the exclusive contribution of labour to output. In a purely arithmetic sense, they show that part of the change in output which is not accounted for by the simple change in aggregate labour inputs. This residual, which is generally quite large in relation to the figures from which it is derived, reflects the combined influence of a variety of factors, some of which tend to be more important in the longer term, while others show their effects most noticeably as the result of short-term fluctuations in the level of economic activity.

Among the basic factors which contribute to long-term productivity growth are increased investment in fixed capital, technological advance, improvements in organization and the techniques of management, the upgrading of general education and occupational skills as well as the greater adaptability of human and material resources in response to change. Short-term productivity movements, on the other hand, frequently reflect the influence of such factors as changing rates of use of the available capital and the shortages of skilled labour and similar strains which typically develop during periods of high economic activity.

A further point to be kept in mind when evaluating these measures of output per unit of labour input is that, because they are expressed as index numbers, they reflect only productivity *change* and nothing can therefore be inferred from them about the underlying *levels* of absolute productivity. Thus, for example, although the trend rate of the increase of output per person employed in the commercial non-agricultural economy of Canada during the postwar period has been widely quoted as being quite close to those of corresponding United States series, there were nevertheless important differences at the beginning of the period in the level of the underlying constant dollar figures and these relative differences have therefore persisted to the present time.

Longer-term background. Current productivity performance can be most usefully looked at against the background of the longer-term developments since the end of World War II. Output per person employed and per man-hour in the commercial economy grew at average annual rates of 3.3 p.c. and 4.1 p.c. respectively, between 1946 and 1966, the difference between these two growth rates arising from the characteristic tendency in virtually all industries during this period toward a steady decrease in average hours worked.

These magnitudes reflect the combined influence of both changes in the productivity of individual industries within the commercial economy and changes in the relative importance of industries with different levels of productivity. In agriculture, for instance, output per person employed and per man-hour trends, at 5.6 p.c. and 5.8 p.c. per annum respectively, were both appreciably higher than the corresponding measures of 2.5 p.c. and 3.2 p.c. for the commercial non-agricultural industries of the commercial economy. At the same time, the absolute level of productivity in the latter was higher than in agriculture, and this factor, in conjunction with the gradual decline in the relative importance of agriculture during the postwar period, also contributed to the over-all growth rates of productivity in the commercial economy because of the higher unit levels of output of the resources thus shifted.

A somewhat similar disparity in postwar growth rates also exists between the manufacturing and non-manufacturing components of the commercial non-agricultural sector where output per person employed grew at 3.4 p.c. and 2.1 p.c. per annum and output per man-hour at annual rates of 3.8 p.c. and 2.9 p.c. respectively. However, neither the change in the relative importance of manufacturing within commercial non-agriculture nor the difference between its absolute level of productivity and that of the residual industries were sufficiently large to produce any noticeable "shift effect" of the kind occurring in agriculture.

Again, an analysis of the commercial non-agricultural economy into its goods-producing and service-producing components reveals significant differences between the productivity performance of these two important sectors during the postwar period. Between 1946 and 1966, output per person employed increased at an average rate of 3.8 p.c. per annum in the non-agricultural goods-producing industries and at 1.1 p.c. in the commercial service-producing industries. For output per man-hour, the corresponding figures were 4.2 p.c. and 1.8 p.c. per annum.

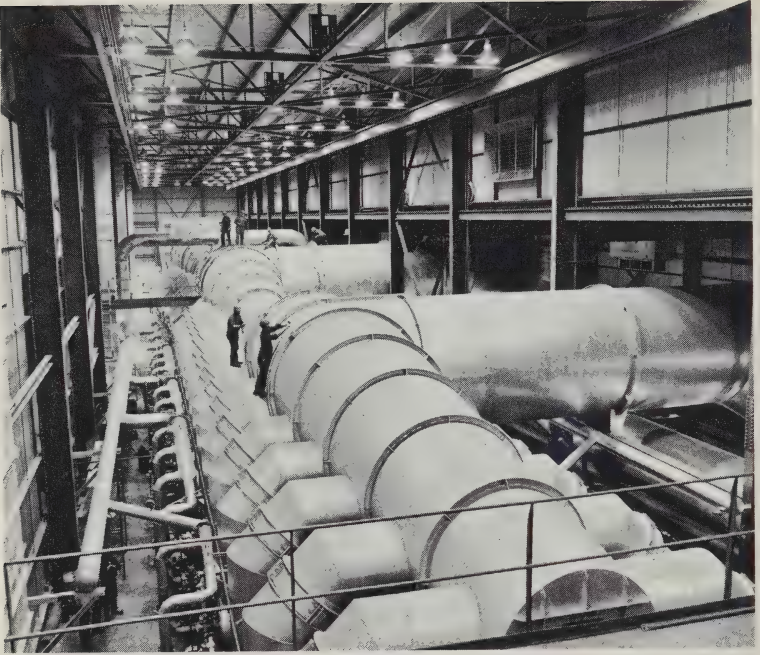
Year-to-year changes. Productivity change is influenced by many separate though interrelated factors which, because of their different time dimensions, can vary in relative importance from year to year. If there had been any marked instability in the record of postwar economic growth, the short-term influences referred to might be expected to have resulted in important year-to-year variations of productivity change from the trend values. With the major exception of agriculture — where nature plays a crucial but unpredictable role — individual year-to-year changes in the series referred to above did not generally differ in any striking fashion from the averages for the entire period from 1946 to 1966. In most cases, the greatest variability occurred in the middle and later 1950s, a period when the most important breaks in the otherwise steady growth of output occurred.

Recent productivity performance. Since the early 1960s, most economic indicators have shown a record of more or less continuous growth and this phenomenon was accompanied, until comparatively recently, by annual productivity gains higher than the average for the postwar period as a whole. For instance, output per person employed in the commercial non-agricultural economy increased at an average rate of 3.0 p.c. per annum between 1961 and 1964 compared with 2.5 p.c. between 1946 and 1966, while in manufacturing the comparable figures were 4.1 p.c. and 3.4 p.c.

In 1965 and 1966, however, successively smaller gains over the previous year were registered in most sectors. A major exception was agriculture, where extremely favourable crop conditions resulted in increases in output per person employed of 13.5 p.c. and 22.1 p.c. in 1965 and 1966 respectively, as opposed to an average of 9.5 p.c. for the period 1961-64. These abnormally high figures importantly influenced the 1965 and 1966 gains in the total commercial economy of 3.7 p.c. and 3.6 p.c. respectively, figures which compared quite

The pulp and paper mill at Corner Brook, Newfoundland, is one of that province's major industries, utilizing the resources of its thickly forested west coast and interior river valleys. The economy of the province is based largely on forest, fish and mineral resources but here, as elsewhere in the country, industry is becoming more diversified.





Putting the final touches to the furnaces in an iron ore pelletizing plant at Atikokan, west of Port Arthur, Ont., which began operations in 1967. Following the large expansion programs that have taken place in iron ore production in recent years, there is emerging a trend toward further pelletization of existing output, sharply increasing the pellet-to-ore ratio.

favourably with the 1961-64 average of 3.8 p.c. but which were not representative of performance in the more important non-agricultural component. Here the gain in output per person employed declined in 1965 to 2.5 p.c. from the 3.0 p.c. average of 1961-64 and again to 1.8 p.c. in 1966.

Within the commercial non-agricultural sector, there have been important differences in productivity performance between manufacturing and the residual non-manufacturing industries. In the former, the consistently high gains of 1961-64 which, in the case of output per person employed, averaged 4.1 p.c. were sustained into 1965 when there was an increase of 4.0 p.c. In 1966, however, the increase dropped sharply to 2.0 p.c. In the non-manufacturing industries, on the other hand, the 1965 gain in output per person employed was, at 1.7 p.c., well below the 1961-64 average of 2.5 p.c., but in 1966 no further decrease occurred. Thus it appears that, in the two successive declines in the rate of productivity growth in the commercial non-agricultural economy, the poorer performance of non-manufacturing industries in 1965 and of manufacturing in 1966 were important factors.

An examination of figures for the service- and goods-producing components of commercial non-agriculture shows that the decline from the consistently higher gains of the 1961-64 period affected both sectors and continued through 1965 and 1966. Thus, as even this limited amount of detail suggests, a great diversity of individual performance underlies the summary results for the major aggregate. However, at the present stage of development of the Dominion Bureau of Statistics' productivity measurement program, data for the individual industries comprising the commercial non-agricultural non-manufacturing residual are not sufficiently precise to be published separately.

A great deal more theoretical and empirical research in the field of production relations must be done before there can be any clear understanding of how and in what measure the various factors mentioned above contribute to productivity change. In the present state of knowledge, explanations of the poor current productivity performance in the non-agricultural economy can only be suggestive in nature. It seems fairly certain, however, that in the present phase of the sustained period of high economic activity of the past few years, the limits of available productive capacity are being hard pressed and a somewhat analogous situation exists with regard to the labour supply where severe bottlenecks have developed in key skills.

The implications of these developments, particularly within the area of international competitiveness which, for Canada, depends on maintaining a record of productivity improvement at least as good as those of its major trading partners, are too complex and far-reaching to be explored here. The Economic Council of Canada, in its *Third Annual Review*, however, has expressed the view that "... while it is by no means inconceivable that the economy could move *slightly* further away from several of its goals in the near-term future, the underlying situation — both internationally and domestically — still displays indications of sufficient basic strength and balance to make it unlikely that the country faces the danger of a prolonged or *major* departure from the goals . . .". The productivity performance of the Canadian economy is a crucial factor in the attainment of these goals of economic growth, low unemployment, price stability, and so on, and thus the results for 1967 will have an important bearing on this judgment.

Percentage Changes in Output per Person Employed

Item	Average Annual Rate of Growth		Change from Previous Year	
	1946-66	1961-64	1965	1966
	p.c.	p.c.	p.c.	p.c.
Commercial industries.....	3.3	3.8	3.7	3.6
Goods-producing industries.....	4.8	5.3	5.4	5.9
Commercial service-producing industries.....	1.1	1.9	1.5	0.7
Agriculture.....	5.6	9.5	13.5	22.1
Commercial non-agricultural industries.....	2.5	3.0	2.5	1.8
Non-agricultural goods-producing industries...	3.8	3.9	3.2	2.6
Manufacturing.....	3.4	4.1	4.0	2.0
Non-manufacturing industries (commercial non-agricultural)	2.1	2.5	1.7	1.6

Industrial Growth

Divergent trends in the volume of output in Canada were experienced in the decade from 1956 to 1966. The late 1950s constituted a period of relative stagnation following the tremendous expansionary pressures of the investment boom of the mid-1950s. The 1960s, on the other hand, witnessed a period of almost uninterrupted growth at rates approaching those achieved during the early 1950s.

The period of low-level production extended over the second major cycle in real output in industry during the post-World War II period.¹ It comprised both the down-swing and the subsequent upturn which reached a peak in the first quarter of 1960. Over this period of 13 quarters, that is, from peak to cyclical peak, total real output increased by only 7.3 p.c. The rapid and prolonged (27 quarters) expansion in production which commenced during the first quarter of 1961 brought total real output to a level 40.3 p.c. above that achieved in the first quarter of 1960. This constitutes not only about six times the absolute increase between 1956 and 1960 but also a rate of increase more than double the earlier rate.

The pattern of slow growth during the late 1950s, followed by substantial advances in output, was widespread among the major industries. The industries which clearly deviated from this general pattern were chiefly those which even during the period of general slowdown reaped the benefits in terms of growth in output from the introduction of new technology, new products, or new marketing techniques. Such, for example, were the industries producing products of petroleum and coal, the chemical group, the public utilities, air transport and the communications industries.

There are also some industries, chiefly within the community, recreation, business and personal services group, which have expanded at a slow but steady rate throughout most of the postwar period, mainly in response to such factors as population growth. These industries continued to expand steadily throughout the past decade.² A few of the primary industries, such as agriculture, which are strongly influenced by factors outside the control of the production process exhibited sharp fluctuations in output from year to year, thus making the establishment of a clear-cut trend more difficult. However, the harvesting of several record grain crops during the 1960s, coupled with substantial sales of wheat abroad, exerted a favourable influence not only on the agricultural industry, but also, indirectly, on the transportation and storage industries which handled the wheat, the grain milling industry which produced large quantities of flour for export, and so forth, down to the retailer who supplied the increased demand of the farm population.

¹For the purpose of this article, "industry" includes agriculture, forestry, fishing and trapping, mining, manufacturing, public utilities, construction, wholesale and retail trade, transportation, storage, communication, finance, insurance and real estate, public administration and defence, and community, recreation, business and personal services, wherever real output by industry is mentioned. Production represents the unduplicated output of individual industries located in Canada, as measured in 1949 dollars. Total production is the sum of the output of all the individual industries.

²The measurement of real output is difficult in some of these industrial areas and labour input measures had to be used to represent output in some major industries. Consequently the measures may not be as sensitive to fluctuations as proper output measures would be.

Only three industry groups advanced at a slower pace during the 1960s than during the preceding period. One of these was electric power and gas utilities, which nevertheless was still the fastest-growing industry group in the economy. The other two were public administration and defence, which declined largely as a result of a levelling off in the federal administration and defence component, and mining whose components showed divergent output movements in the current period.

The slowdown in mining and in electric power and gas utilities appeared to be a long-lasting phenomenon which resulted in a lowering of the rate of advance of these two industries to a level which more closely approximated the average rate of growth for the economy as a whole. Both industries had, during the earlier postwar years, experienced exceptional expansionary pressures. World demand for the products of Canadian mines was at the root of the expansion of the former industry while increasing industrialization and a growing population provided the stimulus for the development of a vast network of hydro-electric projects. In addition, the tapping of Canada's natural gas resources in the western provinces, coupled with the construction of the Trans-Canada Pipeline, made possible the use of this fuel in the heavily-populated urban areas of Central Canada.

Laying a natural gas gathering pipeline through muskeg in the Edson area of west-central Alberta. The Edson field is one of the largest gas reserves found in Western Canada in recent years.





Electric stoves on the assembly line. The electrical goods group of industries showed the greatest advance in value of output among Canada's manufacturing industries in 1966, increasing more than 15 p.c.

All these developments had started from a relatively small base, thus necessitating large-scale capital investments which reached a peak in the 1955-58 period. The result was a strong boost to the output of the industry concerned as each new project became operational, and the high initial growth rates typical of all industries which are strongly affected by technological innovations and change. Once these changes have become established, however, it is not surprising to see a gradual deceleration in the rate of growth. In the case of both mining and public utilities the slowdown was in fact largely a deceleration in the rates of advance for part of the more current period. As mentioned above, within mining the rates of growth continued to diverge, with fuel mining on the whole showing a higher than average rate of advance.

The following table shows the percentage changes in the major industrial groupings and their contributions to the change in total real output as measured from the fourth quarter of 1956 to the first quarter of 1960 and from the latter to the fourth quarter of 1966. It is interesting to note the much higher share of the service-producing industries in the expansion of the late 1950s. In fact the relative contributions of goods- and service-producing industrial output to the total increase were reversed between the two periods. This was not the result of lower growth rates in the service sector, but rather the result of substantially higher outputs in manufacturing, which alone accounted for 35.7 p.c. of the gain in total real output during the 1960s. The durable manufacturing component contributed just over one half of this gain while during the 1950s it had declined slightly.

The major factor behind this advance in the output of durable goods was the unprecedented increase in the production of motor vehicles and motor vehicle parts, which increased by 127.7 p.c. and 125.4 p.c. respectively from 1960 to 1966. Except for production stoppages due to labour disputes, such as the automobile industry strike in the latter part of 1964, motor vehicle production advanced without major interruption until the second quarter of 1966 when a levelling off occurred in both Canada and the United States. This levelling off was variously related to changes in general economic conditions in North

America, particularly the tightening of monetary conditions and the higher general prices. Public concern about car safety was mentioned as a contributing factor but clearly none of these factors offered a sufficient explanation for the slowdown. The iron and steel industry group was another major contributor to the current expansion, increasing by 56.6 p.c. since 1960. However, partly as a result of labour disputes, some levelling off during 1966 was experienced by this industry as well.

Percentage Changes in Major Industry Groups

Item	4th Quarter 1956— 1st Quarter 1960		1st Quarter 1960— 4th Quarter 1966	
	Change from Previous Peak	Contribution to Change in Real Domestic Product	Change from Previous Peak	Contribution to Change in Real Domestic Product
	p.c.	p.c.	p.c.	p.c.
Goods-Producing Industries.	5.0	38.26	44.6	60.00
Agriculture	— 8.1	—11.10	27.0	5.73
Forestry	1.3	0.34	19.3	0.89
Fishing and trapping	—18.4	— 0.95	51.6	0.37
Mining	24.7	16.46	43.2	6.03
Manufacturing	6.1	23.15	52.4	35.70
Non-durable	12.9	25.23	46.1	17.15
Durable	— 1.2	— 2.16	60.1	18.55
Construction	— 0.9	— 0.86	31.7	5.14
Electric power and gas utilities	38.1	12.03	77.3	5.66
Other goods industries	— 4.1	— 0.60	19.6	0.46
Service-Producing Industries	10.1	61.71	35.2	39.95
Transportation, storage and communication	7.9	9.04	52.3	10.88
Trade, wholesale and retail	6.9	13.38	33.3	11.55
Finance, insurance and real estate	15.5	18.50	36.5	8.43
Public administration and defence	9.1	6.10	14.3	1.76
Community, recreation, busi- ness and personal service	12.2	14.52	32.7	7.37
Real Domestic Product	7.3	100.00	40.3	100.00

Another notable feature of the latter part of the current expansion was the increase in the volume of construction, which did not surpass its 1958 peak until 1964. In the intervening period the output of the construction industry hovered around its 1956 level, as the industry failed to recapture the momentum of the investment boom of the mid-1950s. Large new investments both in social and industrial capital were, however, undertaken during the mid-1960s, resulting in an all-time peak in construction in the second quarter of 1966. The growing demand for housing, stimulated by the continued influx of large numbers of the rural people and immigrants into urban centres and, to some extent, by the entry into the labour and housing markets of the first waves of the "baby-boom" of the mid-1940s, resulted in a considerable expansion in residential construction, particularly during 1964. Accompanying this was a new emphasis on the construction of multiple dwelling units. Large-scale investments in such industries as chemicals, pulp and paper, and in hydro-electric



Manic 2, one of seven hydro-electric generating stations at various stages of construction along the Manicouagan and Outardes Rivers in Quebec. More than 5,800,000 kw. will be produced by Hydro-Québec in this complex.

power developments during the mid-1960s provided a boost to non-residential construction, as did the massive investments in social capital such as hospitals and, particularly, schools which had to be built to accommodate the rapidly increasing school population. Toward the end of the period, projects commemorating Canada's Centennial, and the construction work associated with Expo 67, provided an additional boost to construction activity. The sum total of these projects, however, tended to strain the resources of the construction industry in certain parts of the country.

Throughout the current expansion, trade, and especially transportation, also played an important role in increasing the output of the Canadian economy. Railway transport continued to contribute the major share of the gains in transportation, although air, pipeline and truck transport advanced at a more rapid rate. In general, transportation played a vital role during the expansion, particularly in meeting Canada's large and growing export commitments. This was clearly indicated by the sharp increases in rail and water transport at the height of the grain deliveries to overseas countries during 1963 and 1964. It may be noted that during 1966 several of the transportation industries, notably railways, were severely affected by labour disputes, as was the economy as a whole. Time lost in labour disputes did, in fact, almost set a record for the postwar period; this exerted a dampening influence on the rate of expansion of the industries affected and the total output of the economy.

In summary, during the 1960s Canada experienced a period of rapid and sustained economic expansion which has been remarkably well-balanced, on the whole. There was particular strength in the vital manufacturing sector of the economy, with increasing industrial diversification within this sector; exports increased their share of total output; consumer demand was strong and sustained through most of the period; all these factors combined to stimulate investment in increased industrial capacity and new buildings around the mid-1960s. Although within the last year there was some inflationary pressure and a levelling off in output, important segments of the Canadian economy still continued to expand at the end of 1966 and into 1967. Thus no definite trend in industrial real output leading into the late 1960s has as yet emerged.

Finance and Capital Investment

Canada's national monetary unit is the dollar, a decimal currency, worth 100 cents to the dollar. The Bank of Canada issues currency in the form of bills, and the Royal Canadian Mint the coinage in the form of coins in denominations of one dollar, 50 cents, 25 cents, 10 cents, 5 cents and 1 cent. At the end of 1966, Bank of Canada notes totalling \$2,734,000,000 and coins totalling \$293,298,000 were in circulation.

Since May 1962 a fixed exchange rate was adopted with adherence to the International Monetary Fund (IMF) system of maintaining the Canadian dollar within 1 per cent of the then newly established par value of \$1.081 Canadian for the United States dollar.

Chartered Banks and Other Financial Institutions

Under the Canadian constitution, the Federal Government has authority over banking; Parliament grants charters and the banks are supervised by an officer of the Department of Finance, known as the Inspector-General of Banks. The charters of the banks are renewed and the Bank Act revised at approximately ten-year intervals. The latest revision took place in 1967, under which the premise of competition within the banking community and between banks and other financial intermediaries was acknowledged by the removal of certain restrictions on bank operations which had previously placed them at a disadvantage. The most important were the abolition of the 6-p.c. interest rate ceiling on loans formerly required of the banks, the granting of new mortgage-lending powers and the granting of authority to issue their own debentures.

Although there are fewer chartered banks now than at the beginning of the century, there has been a great increase in the number of branch banking offices and Canadians are as generously supplied with banking facilities as any country in the world; the chartered banks now have nearly 6,000 branches across the country, or about one for every 3,400 people. This represents a higher density of banking facilities than in the United States where in 1960 the ratio was one for every 5,500 people, including the savings banks and the savings and loan associations. The concentration of branches varies greatly across Canada, with a ratio of roughly one office to 6,500 people in Newfoundland, and one office to 2,600 in British Columbia. In 1966 Canadian banks also maintained 225 branches and agencies abroad.

Canadian chartered banks engage in a very wide range of activities; they accept various types of deposits from the public including accounts payable on demand, both chequing and non-chequing, notice deposits and fixed-term deposits. The Banks, in addition to holding a portfolio of securities, make loans under a wide variety of conditions for commercial, industrial, agricultural and consumer purposes. They also deal in foreign exchange, receive and pay out bank notes, provide safekeeping facilities and perform other services. These operations are mainly carried out by the extensive network of bank branches, the head offices confining their activities to administration and policy-making functions.

There was a time when a description of the banks would have been adequate for almost the whole Canadian financial system. However in 1966 they accounted for only 35 p.c. of the assets of all Canadian financial intermediaries. Their competitors were trust companies, mortgage loan companies, caisses populaires, credit unions, Quebec savings banks, life insurance companies, acceptance companies and pension funds. Investment dealers and stock brokers also play an important part in the financial system.

Among the first non-bank financial intermediaries to gain prominence were the mortgage loan companies, which in 1880 represented about 25 p.c. of the total financial intermediary assets. This strong demand for mortgage credit was the result of land settlement and urban development. After a long period of decline, mortgage loan companies became more firmly established and in 1966 accounted for about 3.8 p.c. of total financial intermediaries' assets.

Since their beginning in 1882 the trust companies were the only incorporated institutions acting in a fiduciary capacity. There was an attempt to keep them out of the "banking" and "mortgage loan company" business by preventing them from taking deposits and issuing debentures. They were permitted, however, to take funds "in trust" in the form of a deposit or guaranteed investment certificates. During the 1920s their growth was rapid and even resulted in the absorption of some of the mortgage loan companies.

Although a substantial proportion of the assets of both mortgage and loan companies are held in mortgages, trust companies also administer private and corporate pension funds and the estates of individuals, manage companies in receivership, act as financial agents for municipalities and corporations, and perform various other services for the public at large. Mortgage and trust companies may be licensed either by the Federal Department of Insurance or by provincial authorities. In 1966 their combined assets represented 10 p.c. of all financial intermediaries' assets.

Another important and relatively new type of intermediary among Canadians is the credit unions and, in Quebec, the caisses populaires. The caisses populaires began operations around 1900 and acted mainly as savings institutions for low income groups. Later, some began lending to members at low cost, in addition to providing savings facilities. Unlike the chartered banks, most of which were in operation since the turn of the century, virtually all of the credit unions and caisses populaires were founded during the past generation. Their growth has been due in large measure to the co-operative concept, the local character and diversified services of individual credit unions and

caisses populaires—a striking contrast to the development of many other institutions.

Deposit liabilities held at the chartered banks are considered by Canadians as a safe and convenient means of settling transactions and are usually thought of as money. Deposits in other financial institutions which are transferable on the customer's order or redeemable for cash at any time, also serve as money since they are generally accepted in settlement of debts. By far the largest proportion of all payments and almost all large payments made by Canadians are made by cheque. Obviously, not all deposit liabilities are used to the same extent since they are different with regard to their chequability, liquidity, term to maturity, and general acceptability. The table below lists the main types of deposit liabilities which are used as sources of savings.

Deposit Liabilities of Financial Institutions as at Dec. 31, 1964-66

Institutions	1964	1965	1966
	\$'000,000		
Chartered Banks—			
Demand deposits.....	4,615	5,157	5,345
Personal deposits.....	8,935	9,725	10,248
Non-personal and term and notice deposits....	1,549	2,044	2,430
Government of Canada deposits.....	696	797	919
Currency outside banks.....	2,254	2,419	2,589
Quebec Savings Banks—			
Total deposits.....	384	408	437
Trust Companies—			
Demand and savings deposits.....	1,048	1,115	1,094
Guaranteed investment certificates.....	1,551	2,006	2,421
Mortgage Loan Companies—			
Demand and savings deposits.....	321	365	373
Debentures.....	1,182	1,372	1,486
Caisses Populaires and Credit Unions—			
Deposits.....	1,123	1,296	..
Shares.....	864	979	..
Post Office Savings Banks, Ontario Savings Office and Alberta Treasury Branches.....	210	226	238

These financial intermediaries provide the vital link between savers and borrowers, since these two groups make the savings and investment decisions in the economy. Without financial intermediaries, savers would have difficulty in locating borrowers offering instruments of just the right terms, and amounts; they would run the risk of dealing with unfamiliar borrowers and would not be provided with such services as safekeeping, life insurance protection or convenient payment plans. On the other hand, borrowers would find it necessary to locate funds from a scattered group of savers, and pay for the specialized services that financial intermediaries can provide.

The chartered banks, however, are the chief financial intermediaries and offer a range of deposit facilities. The most important are personal savings accounts on which interest is paid, and current accounts which do not draw interest. Both forms of deposits are freely transferable by cheque except that the banks may demand at least seven days notice for withdrawal of deposits in savings accounts (traditionally, this requirement is waived). Banks have recently



At the Royal Canadian Mint, pure nickel blanks become five-cent coins. This metal has been selected as the best material for Canadian coins in future, replacing the silver alloy used up to now for ten-cent, twenty-five-cent and fifty-cent coins.

begun to encourage the use of savings accounts on which cheques may not be drawn but which pay higher rates of interest. They make loans to individuals and businesses, most of which are short-period loans. Banks also invest in securities of all levels of government and of a broad range of Canadian corporations as well as in mortgages.

Bank of Canada

At the centre of the financial system is the Bank of Canada, established in 1934 to regulate credit and currency in the best interests of the economic life of the nation, to control and protect the external value of the national monetary unit and to mitigate by its influence undesirable fluctuations in the general level of production, trade, prices and employment, as far as may be possible within the scope of monetary action, and, generally, to promote the economic and financial welfare of the country.

Chartered banks are required by law to maintain on the average during each calendar month reserves consisting of deposits with, and notes of, the Bank of Canada. Until June 30, 1967, the required cash reserve ratio was 8 p.c. on both demand and notice deposits in Canadian dollars. After a transitional period ending February 1968, a new ratio of 12 p.c. for demand deposits and

4 p.c. for notice deposits became effective as prescribed under the Bank Act of 1967. The Bank of Canada buys and sells a variety of financial assets to influence the financial system. These transactions by the bank vary the amount of cash reserves available to the banking system and thus regulate the broad trend of the combined total of currency outside banks and chartered bank deposit liabilities in a manner consistent with the changes in credit conditions that it considers appropriate.

The Bank also makes short-term advances to chartered banks or to banks operating under the Quebec Savings Bank Act as well as to the Government of Canada. The minimum rate at which the Bank is prepared to make advances is called the Bank Rate, and the Act requires that it be made public at all times.

The Bank acts as fiscal agent for the Government of Canada; it operates the government's deposit account through which flows virtually all government receipts and expenditures, handles debt management and foreign exchange transactions for the government, and acts as an adviser.

Insurance

Canadians, in general, are well insured compared with people in other countries, with an average of over \$16,000 of life insurance in force per household. Savings through life insurance companies on insurance and annuity business account for about 17 p.c. of personal savings.

The Canadian life insurance industry consists of approximately 240 companies and fraternal benefit societies, about two thirds of which are federally registered companies. The latter group holds more than 90 p.c. of the total assets of the industry, well in excess of \$12,000,000,000. In addition to life insurance, most of these companies sell policies covering expenses resulting from illness and compensate policyholders for wages not received. Insurance may be purchased from a licensed insurance salesman or through a "group" plan at one's place of work.

In addition to those companies selling life insurance, there are more than 350 companies selling insurance for fire, theft, automobile damage, and other forms of casualty.

In recent years, long-term investors have had another alternative as mutual funds have grown in number, variety and size. These funds collect the savings of small savers, often on an instalment basis, for investment in a broad range of securities. They offer the investor management experience and the security of a broadly-based portfolio. There are now approximately 93 mutual funds serving Canadians with total net assets in excess of \$2,600,000,000.

Federal Finance

The responsibilities of government in Canada are shared by three levels — federal, provincial and municipal. The British North America Act of 1867 allocates responsibilities and taxing powers between the provinces and the Federal Government. However, throughout the years, the scope of government has become broader necessitating major changes in revenue and expenditure patterns, with the result that the finances of all three levels have become more and more interrelated.

Income taxes on both individuals and corporations yield almost 50 p.c. of the net general revenue of the Federal Government, and the addition of the sales tax brings the yield from these three items to 72 p.c. Indirect taxes, composed of excise duties and taxes and customs and import duties yield smaller but still substantial amounts of revenue. The largest item of expenditure of the Government of Canada in 1966 was for social welfare, followed closely by expenditure on defence. Debt charges was the third largest item.

Revenue, expenditure and the net debt of the Government of Canada reached all-time highs in the year ended Mar. 31, 1967. The net debt surpassed the previous record of \$15,543,447,865 attained at Mar. 31, 1966 by slightly more than \$420,000,000. In 1939 the net debt amounted to 60 p.c. of the gross national product; by 1946 it had risen to 113 p.c. but by the end of March 1967 it had declined to about 27 p.c. The outstanding unmatured funded debt (debentures and treasury bills) of the Federal Government at the end of March 1967 totalled over \$19,940,000,000, about 98 p.c. of which was payable in Canada and the remainder in New York.

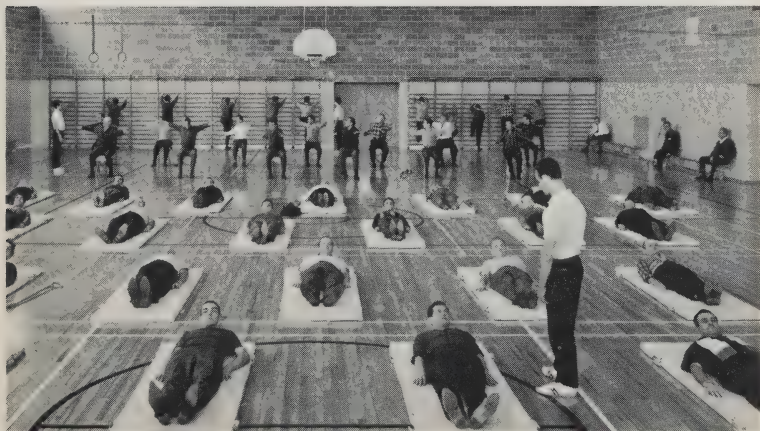
Net General Revenue and Expenditure of the Federal Government, Year Ended March 31, 1966¹

Source	Revenue	Function	Expenditure
	\$'000		\$'000
Taxes—		Defence services and mutual aid . .	1,571,539
Income—		Veterans' pensions and benefits . .	372,160
Corporation	1,758,870	General government	339,535
Individual	2,637,356	Protection of persons and property	163,067
Withholding—on interest, etc.,		Transportation and communica-	
going abroad	170,019	tions	598,407
General sales	1,917,215	Health	481,185
Excise Duties and Taxes—		Social welfare	1,891,283
Alcoholic beverages	264,097	Recreational and cultural services .	57,733
Tobacco	424,236	Education	296,445
Other	52,076	Natural resources and primary in-	
Customs import duties	685,519	dustries	443,940
Estate taxes	108,353	Trade and industrial development . .	88,670
Other	161	National Capital area planning and	
Total Taxes	8,017,902	development	29,699
Privileges, licences and permits . .	38,622	Debt charges (excluding debt re-	
Sales and services	108,215	tirement)	897,030
Fines and penalties	2,741	Payments to government enter-	
Exchange fund profits	63,001	prises	162,743
Receipts from government enter-		Payments to provincial and muni-	
prises	156,541	cipal governments:	
Bullion and coinage	16,655	Federal-provincial fiscal arrange-	
Postal service	276,050	ments	352,003
Other revenue	14,993	Other	77,568
Non-revenue and surplus receipts .	21,260	International co-operation and as-	
Total Net General Revenue . .	8,715,980	sistance	126,410
		Postal service	301,453
		Other	282,356
		Non-expense and surplus payments	669
		Total Net General Expendi-	
		ture	8,533,895

¹Preliminary.

Federal-Provincial Tax Agreements. The increasing use by both the federal and the provincial governments of their rights in the field of direct taxation in the 1930s resulted in uneconomic duplication and some severe tax levies. Starting in 1941, a series of federal-provincial tax agreements were concluded to promote the orderly imposition of direct taxes. The duration of each agreement was normally five years. Under the earlier agreements, the participating provinces undertook, in return for compensation, not to use or permit their municipalities to use certain of the direct taxes. Under the present arrangements, the federal income tax otherwise payable in all provinces and the estate tax otherwise payable in three provinces are abated by certain percentages to make room for provincial levies.

The current arrangements became operative on Apr. 1, 1962 and were originally scheduled to terminate on Mar. 31, 1967, but have been extended to Mar. 31, 1969. They amount to a partial federal withdrawal from the field of direct taxation and a re-entry of all provinces into the vacated area. The federal personal income tax otherwise payable on income earned in a province and on income received by a resident of a province is reduced by the following percentages: 16 p.c. for 1962 income, 17 p.c. for 1963 income, 18 p.c. for 1964 income, 21 p.c. for 1965 income, 24 p.c. for 1966 income and 28 p.c. for 1967 and 1968 income. The abatements in respect of income earned in Quebec or received by a resident of Quebec are 44 p.c. for 1965 income, 47 p.c. for 1966 income and 50 p.c. for 1967 and 1968 income. Additional points of abatement in Quebec are to allow that province to collect revenue to pay for certain programs that are paid for in whole or in part by the Federal Government in other provinces. The Federal Government also reduces its rate of corporation income tax on taxable income of corporations earned in the provinces. The reduction was 9 p.c.



Physical training at a Quebec rehabilitation centre. The federal-provincial vocational rehabilitation program costs cover medical, social and training assistance to disabled or other vocationally disadvantaged persons. Expenditures for this program totalled \$2,050,000 in 1966-67.



The Atlantic Provinces have many picturesque villages, such as Fogo on the north coast of Newfoundland, interesting to the tourist but where life may be difficult and unrewarding. The work of the Atlantic Development Board is aimed at stimulating growth and activity in such areas by providing basic services and plans for development.

of taxable income earned in any province except Quebec and 10 p.c. of taxable income earned in Quebec for the years from 1962 to 1967. The additional 1-p.c. reduction in respect of taxable income earned in the Province of Quebec for these years was to compensate for the additional tax levied by the province during this period on corporation income to provide grants to universities. These provincial grants replaced federal grants which in other provinces were paid to the universities by the Federal Government through the Canadian Universities Foundation. For 1967 and 1968, with the termination of direct federal financial assistance to universities, the abatement of the federal rate of corporation income tax is 10 p.c. of taxable income in all provinces. The Federal Government also abates the federal estate tax otherwise payable by 75 p.c. in respect of property situated in a province that levies its own death tax; currently only the estates of domiciliaries in British Columbia qualify for the full abatement.

The provincial tax rates are not restricted to the extent of the federal withdrawal. The constitutional position of the provinces permits them un-

limited use of direct taxes for the raising of revenue for provincial purposes. However, in five provinces (Prince Edward Island, Nova Scotia, New Brunswick, Alberta and British Columbia), the provincial rates of income tax do not exceed the federal abatement.

As part of the 1962-69 fiscal arrangements, the Federal Government has entered into tax collection agreements under which it collects the provincial personal income taxes for all provinces except Quebec and the provincial corporation income taxes for all provinces except Ontario and Quebec.



A new headquarters building for the Department of National Revenue is being added to the complex of government buildings located at Confederation Heights in south Ottawa. It will replace the offices now occupied on Sussex Street in the central part of the city.

Federal-Provincial Programs. During the past decade there has been a rapid increase in federal expenditures on joint federal-provincial programs which may take the form of financial assistance to a provincial program, the assumption of responsibility for part of a provincial project, or the administration of a program to which the province contributes financially.

The first category, called conditional grant programs, is by far the most common; they include programs under which the Federal Government agrees to finance provincial programs under certain conditions. Various programs in the health and welfare fields are good examples. The National Health Grant Program makes federal grants available to the provinces for the developing and strengthening of public health and hospital services. Under the Old Age Assistance Program, the Federal Government undertakes to share with a province the cost of assistance to persons aged 65 or over to the extent of 50 p.c. of a monthly sum of \$75; the province bears the cost of administration and the remainder of the allowance. Under the Canada Assistance Plan, the federal share of the cost of welfare paid to recipients in need is 50 p.c.; the scale and

conditions of the assistance are determined by the province. Assistance to persons and their dependants who are unemployed and in need is provided by the province concerned, which is reimbursed to the extent of 50 p.c. by the Federal Government. Other joint welfare programs include allowances for blind persons, allowances for disabled persons, the fitness and amateur sport program, the national welfare grant program which is intended to help develop and strengthen welfare services through general and professional training and research, and the federal-provincial vocational rehabilitation program.

Joint programs in the second and third categories are not numerous and are generally of a public works type, such as the irrigation projects carried out in Alberta and Saskatchewan.

The Agricultural and Rural Development Act (ARDA), supplemented by the Fund for Rural Development Act, complements and supplements existing federal and provincial legislation in respect of renewable resources and rural social and economic development. The federal share of projects undertaken under this program is usually about 50 p.c. of total cost. This program arose out of the recognition of a national interest in achieving better land use, improving the viability of uneconomic farm units and improving employment and income opportunities in rural areas. During 1966-67, the Federal Government committed ARDA funds to the extent of \$39,429,000, covering 371 projects.

The Atlantic Development Board was established for somewhat the same purpose in relation to the Atlantic Provinces — to assist the four provinces, on a cost-sharing basis, with programs and projects aimed at stimulating the economic growth of that region. By March 31, 1967, projects costing an estimated \$98,714,000 had been approved.

Provincial Finance

Net general revenue of provincial governments is estimated at \$7,002,860,000 in the year ended Mar. 31, 1968, and net general expenditures at \$7,429,630,000, were 18.7 p.c. higher than the corresponding estimated expenditures for the preceding fiscal year.

Net General Revenue and Expenditure of Provincial Governments, Year Ended March 31, 1968¹

Province	Revenue	Expenditure	Province	Revenue	Expenditure
	\$'000	\$'000		\$'000	\$'000
Nfld.....	166,500	206,980	Man.....	291,640	281,800
P.E.I.....	33,120	34,230	Sask.....	317,980	315,150
N.S.....	214,780	249,640	Alta.....	521,660	603,840
N.B.....	220,970	230,820	B.C.....	659,340	630,500
Que.....	2,307,400	2,462,130			
Ont.....	2,269,470	2,414,540	Totals.....	7,002,860	7,429,630

¹ Estimated.

Total tax revenue was estimated at \$4,779,770,000 for the same fiscal year, an increase of \$811,226,000 or 20.4 p.c. over the corresponding estimated figures for the year ended Mar. 31, 1967. Higher revenue from the general sales tax and from individual income taxes are factors contributing to these higher estimates.

In Newfoundland the social security assessment was increased by one percentage point to 6 p.c. The gasoline tax was increased by one cent a gallon to 20 cents, effective Apr. 1, 1967. The tax on the taxable income of companies and corporations was increased from 10 p.c. to 11 p.c.

In Quebec, effective Mar. 16, 1967, the retail sales tax was increased from 6 p.c. to 8 p.c. The tax on telecommunications was also increased by 2 p.c. to 8 p.c. Effective Apr. 15, 1967, the taxes on meals and hotel rooms were also increased by 2 p.c. to 8 p.c. Effective Jan. 1, 1967, Quebec adopted a change in income tax for persons with lower incomes. Single persons earning less than \$2,000 and married persons with incomes below \$4,000 are fully exempt from personal income tax.

In Manitoba, effective June 1, 1967, a general sales tax of 5 p.c. was introduced. There are exemptions provided under this tax for prescription drugs, eye glasses, dentures, hearing aids, agriculture equipment and seeds, capital equipment for industry and other items. Effective May 1, 1967, the exemption for gasoline taxation was extended to cover its use in farm trucks.

Analysis of Net General Revenue and Expenditure of Provincial Governments, Year Ended March 31, 1968

Source	Revenue	Function	Expenditure
	\$'000		\$'000
Taxes—		Transportation and communica-	
Income—		tions.....	1,020,880
Corporation.....	605,188	Health.....	1,521,140
Individual.....	1,465,060	Social welfare.....	499,740
Sales—		Education.....	2,184,730
General.....	1,247,200	Natural resources and primary in-	
Motor fuels and fuel oils... ..	792,600	dustries.....	341,680
Other.....	181,715	Debt charges (exclusive of debt	
Succession duties.....	115,000	retirement).....	189,540
Other.....	373,007	Contributions to municipalities	
Total Taxes.....	4,779,770	(unconditional).....	231,560
		Other expenditure.....	809,860
Government of Canada—		Total Net General Expendi-	
Statutory subsidies.....	31,747	ture Exclusive of Debt Re-	
Federal-Provincial Fiscal Ar-		retirement (excluding the	
rangements Act:		province of B.C.).....	6,799,130
Share of federal estate tax... ..	53,680	Net General Expenditure of B.C.	
Equalization (including stabil-		(functional breakdown not avail-	
ization).....	617,338	able).....	630,500
Share of income tax on power		Total Net General Expenditure	
utilities.....	6,253	Exclusive of Debt Retirement	7,429,630
Compensation due to with-			
drawal from joint programs..	8,335		
Post-secondary education ad-			
justment payment.....	97,709		
Unconditional contribution..	31,215		
Total Government of Canada... ..	846,277		
Privileges, licences and permits..	891,480		
Liquor profits.....	337,470		
Other revenue.....	147,863		
Total Net General Revenue..	7,002,860		

In Quebec, effective April 1, 1967, a family allowance program became effective over and above the federal program. These allowances are payable for Quebec children from birth until their sixteenth birthday at the annual rate of \$30 for the first child, \$65 for the second, \$105 for the third, \$155 for the fourth, \$215 for the fifth, \$285 for the sixth, and an extra \$70 for each child after the sixth. In addition, a \$10 annual supplementary allowance is payable for children aged 12 to 16 years inclusive. The \$300 per child income tax exemption was abolished as of July 1, 1967. There was no change in schooling allowances for children not eligible for family allowances and tax exemptions were maintained at \$550 per child.

Municipal Finance

By authority of the British North America Act, 1867, municipal government in Canada is placed under the control of the provincial legislatures. Thus the powers of municipal governments are those given to them by the statutes of their respective provincial governments, except for the Yukon and Northwest Territories where some municipal powers have been assigned to certain localities by the Federal Government and the territorial councils.

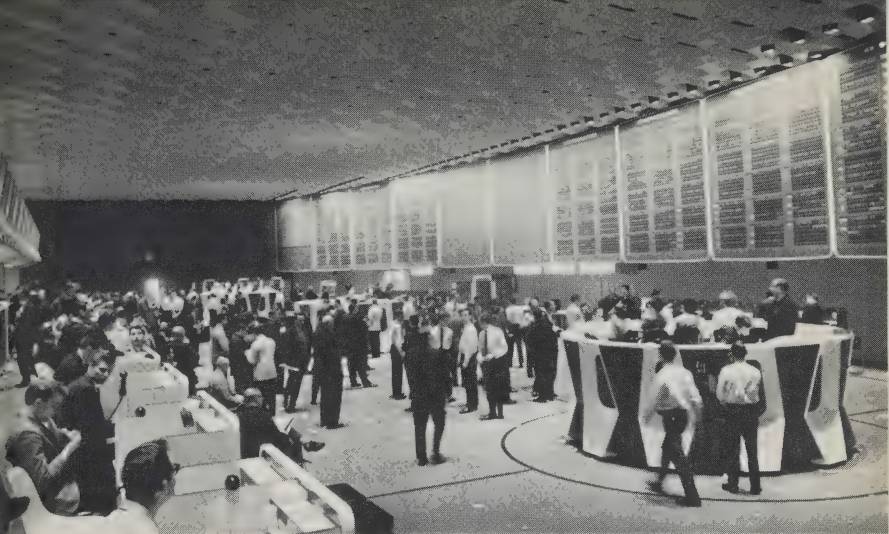
The responsibilities delegated to municipalities, although varying from province to province, are largely those of raising revenue locally, of borrowing, and of providing the following services: roads and streets; sanitation; protection to persons and property such as policing, fire fighting, courts and jails; certain health and welfare services; and some recreation and community services. In January 1967, the Government of New Brunswick resumed the responsibility for providing health and welfare services as well as the administration of justice and education in its municipalities although education at the elementary and secondary school level is still partially financed by application of a real property tax. In the other provinces, the municipalities are also responsible for levying and collecting the local taxation for school purposes but exercise little or no control over school administration or finance. In most of Quebec and in some minor localities in some other provinces, the school authorities levy and collect local taxes.

The major revenue source available to municipalities, yielding over two thirds of the total, is the real property tax. It is supplemented in varying degrees by taxation of personal property, business and other taxes, fines, licences and permits, public utility contributions and provincial grants and subsidies.

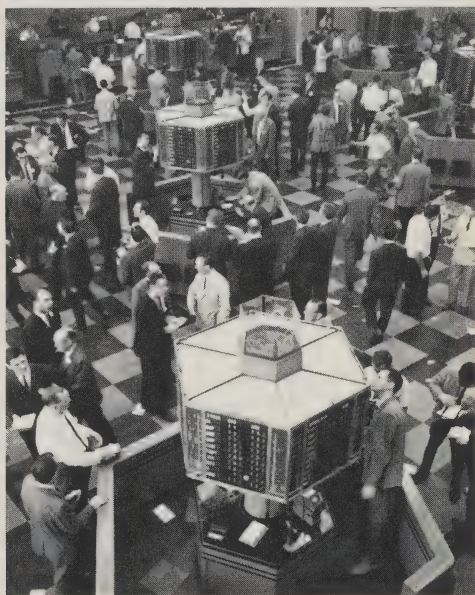
The issuance of municipal debt is limited by provincial legislation or regulations. More and more, provincial governments are aiding municipalities and schools in their capital projects by various methods, such as outright grants, loans, sharing of debt charges and assumption of debt.

For the calendar year 1964 gross current revenue of all municipal governments in Canada amounted to approximately \$2,545,836,000 and expenditure to \$2,523,812,000.

As at December 31, 1964, total direct debt less sinking funds of municipal governments, including activities carried on under their authority or by bodies which are co-existent with the municipalities, amounted to \$6,050,061,000.



Activity on the stock exchanges reflects the economic activity of the country. In 1967 stocks valued at \$1,302,720,377 were traded on the Montreal Stock Exchange (top) and stocks valued at \$3,521,312,476 on the Toronto Stock Exchange.



Capital Investment

Capital expenditures in Canada are one of the most important measurements of economic activity in that they compromise about one quarter of the gross national product and represent dynamic elements of the Canadian economy. The building of new homes by individuals, new factories and office buildings by business, and new dams, roads, parks and bridges by governments, all represent an investment in assets which can be used for the production of goods and services for consumption.

Studies of capital expenditures in Canada were made late in 1966 and at mid-year in 1967. At those times estimates were compiled of non-residential construction, machinery and equipment. Estimates were also made of expected levels of outlays on new housing during 1966 and 1967.

Capital expenditures were expected to reach a total of \$15,520,000,000 in 1967, an increase of 4 p.c. over the 1966 level. Outlays for construction and for machinery and equipment purchases were expected to be, respectively, 4 p.c. and almost 5 p.c. higher than in 1966. The 1967 program represents a levelling off in the sharp upward trend of capital spending which prevailed in the preceding three years; however, the level of expenditures will remain high.

Completion of this program is subject to certain business conditions such as possible work stoppages, changes in prices, cost of borrowing, and other circumstances which can influence the timing of the start of projects or the continuation of the original plans of additions, expansions or modernization of assets.

Business investment in 1967 was expected to increase by about 3 p.c. with the largest upward adjustment occurring in the fuel and power industries. Capital spending by these industries was expected to exceed that of 1966 by \$363,000,000 or by 19 p.c. These expanded programs cover petroleum and gas development, petroleum refining, pipelines and electric power.

Spending for social capital facilities in Canada was expected to increase in 1967 by about 6 p.c. Planned outlays by governments have been revised moderately upwards and were expected to increase by 5 p.c. from the 1966 level. Plans by institutions involved an increase of 15 p.c. above those in 1966 and outlays for schools were expected to be substantially above the 1966 level.

Edmonton's newest hotel, the Chateau Lacombe, was opened in 1967.

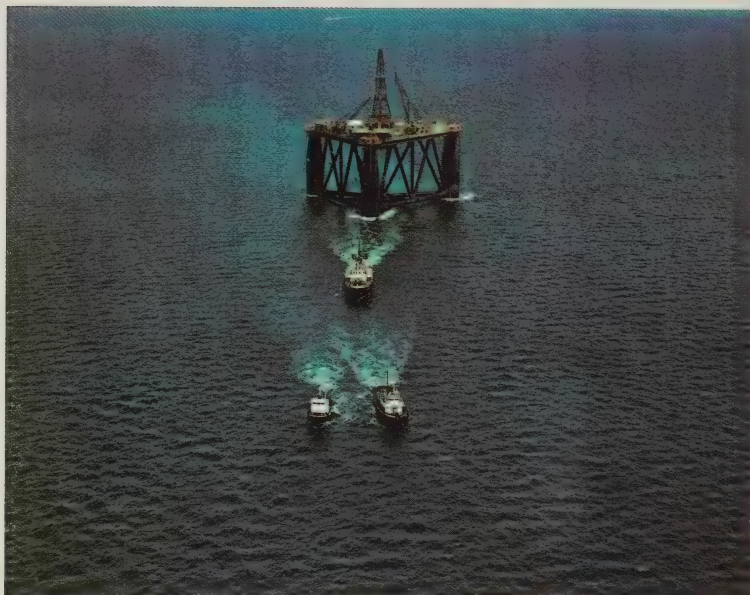




The tar sands processing plant at Fort McMurray in northeastern Alberta began operations in the fall of 1967, producing 45,000 bbl. of oil, 300 tons of elemental sulphur and 2,800 tons of coke daily from 110,000 tons of sand.

Meat-packing has long been a major activity in Manitoba and still leads the manufacturing industries of the province in value of shipments. Three new plants have recently extended the production facilities of this large Winnipeg establishment.





Drilling for oil and gas is an expensive business but the result may be well worth the exploratory expenditure. Here an oil-drilling platform is being towed to a location off the coast of Vancouver Island where drilling began in 1967 after extensive marine seismic work had been carried out at the site.

Estimates for 1967 provided for a house-building program at a cost totalling \$2,260,000,000, nearly 4 p.c. greater than that of the previous year.

Private and Public Capital Expenditures, by Sector, 1963-67

Sector	1963	1964	1965	1966 ¹	1967 ¹
			\$'000,000		
Business Capital (excluding housing).....	5,463	6,617	7,937	9,392	9,656
Agriculture and food industries.....	950	1,042	1,160	1,256	1,322
Resource based forest and mineral industries....	744	1,010	1,179	1,636	1,474
Secondary and construction industries....	823	1,197	1,536	1,707	1,580
Fuel and power (including distribution)....	1,128	1,323	1,609	1,934	2,297
Trade, finance and commercial services....	917	1,042	1,269	1,462	1,471
Transportation, storage and communication	901	1,003	1,184	1,397	1,512
Housing and Social Capital	3,930	4,327	4,928	5,505	5,864
Housing.....	1,713	2,028	2,133	2,181	2,260
Institutional services.....	873	771	1,012	1,186	1,358
Government departments and water works.	1,344	1,528	1,783	2,138	2,246
Total Capital Expenditures	9,393	10,944	12,865	14,897	15,520

¹Subject to revision.

Housing. A noticeable decline in new housing starts at a time when Canadian housing needs showed a marked increase characterized the year 1966. However, major changes in policy and legislation made late in the year resulted in an upturn in mortgage lending and housing starts in the first quarter of 1967.

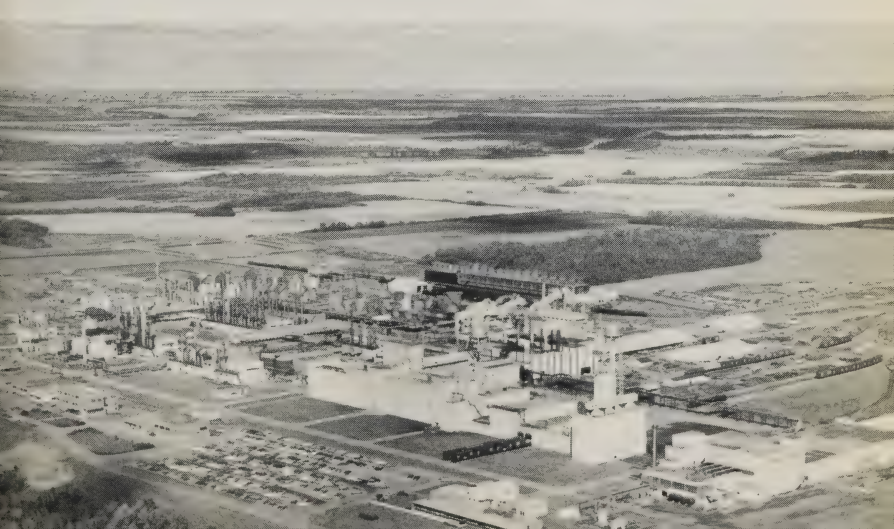
During this period there was a significant growth in the provision of housing for the poor, the elderly, for students, and in urban renewal programs. In 1966, investment in Canada's low-rental-housing program rose to about \$95,000,000 from approximately \$54,000,000 in 1965; loans for student residences approached \$50,000,000 compared with \$24,000,000 in the previous year; and contributions to urban renewal projects advanced to \$16,000,000 from \$4,000,000.

The decline in housing starts, to 134,474 units in 1966 from 166,565 in 1965, foreshadowed a low rate of completions for 1967 although requirements had been estimated at close to 170,000 dwellings by the Economic Council of Canada.

To help meet the need, major policy changes were made in November 1966. These included the introduction of NHA loans for existing housing and the provision of a formula by which the maximum National Housing Act interest rate is adjusted, on a quarterly basis, as other interest rates change. A third major policy change, contained in the amendments to the Bank Act passed by Parliament in 1967, allows banks to make NHA mortgage loans at whatever interest rate is prescribed under the Housing Act and admits the banks to the conventional mortgage-lending field.

Since Mar. 31, 1967, the NHA interest rate has been reviewed quarterly and adjusted up or down to the nearest one quarter of 1 p.c. to hold the NHA interest rate 1.5 p.c. above the average yield on long-term Government of Canada bonds. The objective of the legislation extending NHA loans into the existing housing market was to remove an inequality — the greater difficulty

A large chemical complex near Edmonton which produces basic industrial chemicals, some of which are further processed in its own plants to become cellulose acetate, acetate films, yarns and fibres, fabrics and carpets. The chemical and chemical products industry has progressed very rapidly in Alberta and the annual value of its shipments is now second only to that of the food and beverage industries.



lower income families have in obtaining mortgage loans for home-ownership compared with higher income families. It also encourages the repair and improvement of older properties.

By the end of March 1967, the effects of these changes were beginning to show. Three times as many NHA loan applications had been made in the first quarter as in the same period the year before. The seasonally adjusted rate of housing starts also increased and as spring building reached its peak it was expected that an annual rate of more than 170,000 units would be achieved.

Urban areas in all regions of the country were affected by the 1966 slackening in residential construction. Much of the decrease was in apartments and other multiple-type dwellings while starts of single-detached units showed only a moderate decline from 1965. Even the record number of buildings completed in 1966, resulting from the high rate of starts in 1964 and 1965, was insufficient to meet the increasing demand for new housing. Vacancies in apartments were reduced in all parts of the country, inventories of newly completed unoccupied houses were down from the levels of preceding years, and the demand for the available housing was mounting.

Altogether, in 1966 starts of single-detached, semi-detached and duplex houses (77,923) were down 6.5 p.c. from the 83,365 started in 1965. Starts of apartments and row dwellings dropped to 56,551 units, 32 p.c. below the 1965 figure of 83,200. The number of dwellings completed (162,192 units) was significantly higher than the 153,037 in 1965, while dwellings under construction at the end of 1966 fell to 88,621 units compared with 119,854 at the end of 1965.



Row housing built in Saint John, N.B., as part of the city's urban redevelopment program. Federal grants and loans are available to assist provinces and municipalities with such urban renewal projects.

This activity in terms of the value of residential work during 1966 amounted to \$2,200,000,000, which was relatively unchanged from the previous year. The decline in starts reflected a reduction in private mortgage lending by the principal mortgage lending institutions of the country. This, in turn, reflected the high demand for capital resources exerted by the other sectors of the economy.

The number of dwellings financed during 1966 under the National Housing Act declined 6.9 p.c. to 51,029 from 54,842 in 1965. Of this total, activity by the Central Mortgage and Housing Corporation accounted for 38,591 units (up 25.8 p.c. from the 1965 total of 30,670) more than one quarter of the total housing program for 1966. Approved NHA lenders made loans for 12,438 units or 48.5 p.c. less than the 24,172 financed in 1965. Dwellings financed from other sources dropped to 83,445 units — 25.3 p.c. fewer than the 111,723 units started in 1965.

The average price of NHA-financed houses purchased in 1966, including many that were started in the previous year, was \$17,945. Most of the houses (72 p.c.) were bungalows; four out of five had three bedrooms and the remainder had four or more.

Housing costs increased significantly in 1966. While the index of prices of residential building materials rose by only 1.8 p.c. from 1965 to 1966, the index of wage rates for building labour went up by 7.9 p.c. over the same period. As a result the combined cost index for residential building moved up by 4.8 p.c. Land cost climbed more sharply than did construction costs in 1966 as in most preceding years. Estimated costs of lots for houses financed under NHA averaged \$3,480 in 1966, a rise of 12.4 p.c. over the previous year. Increases in land and construction costs, together with a small increase in the average size of houses, resulted in a total estimated average cost of \$19,293 for NHA-financed houses in 1966.

Other amendments to the NHA were approved in 1966. One increased the ratio of loan to lending value (from 85 p.c. to 90 p.c.) for NHA-financed rental housing projects. Another extended to Mar. 31, 1970, the period within which the construction of a sewage treatment project may be completed if the municipality is to be forgiven payment of part of the loan and accrued interest. Much has been done under the latter section of the NHA to alleviate water and soil pollution. Since 1960 CMHC has made available more than \$200,000,000 in loans to municipalities in every province in a major effort to encourage conservation and to combat the health hazard caused by pollution.

Another 1966 amendment not only increased the funds available for student housing at universities but also broadened the coverage. Loans can now be made under the NHA for projects to house students at vocational and technical schools, training hospitals and schools for special groups of handicapped persons, such as the blind. Since the NHA was amended six years ago to provide loans for university housing projects, accommodation for more than 33,000 students has been provided on or near campuses throughout Canada.

A further legislative change increased the amount of all loans that may be insured under the NHA and also increased the funds available for direct lending by the Corporation for a variety of purposes, including new and existing housing.



Fiberglass insulation is attached to the roof of a pre-fabricated house unit. An Alberta company specializes in the supply of made-to-order transportable encampments and temporary townsites that can accommodate and service several hundred people at construction and exploration sites. They can be rapidly shipped to any part of the globe.

Another important development during 1966 was the announcement that Central Mortgage and Housing Corporation was assisting the Department of Indian Affairs and Northern Development in a program designed to familiarize Canada's Eskimo population with the management and operation of modern housing. An NHA grant will assist in meeting its cost for more than one year. The program, to be carried out in three phases, covers the basic principles of rental housing, the use and maintenance of household equipment, and instruction aimed at lowering management costs by teaching Eskimos to administer the housing through their own elected representatives.

Under Part V of the National Housing Act, CMHC may sponsor research on housing conditions and methods of house construction, assist in community planning, make educational grants, and sponsor studies of housing design. During 1966 CMHC spent close to \$2,000,000 for these purposes both on its own account and through arrangements with other agencies. Among the organizations receiving such grants were the Canadian Housing Design Council, the Community Planning Association of Canada, the Ontario Research Foundation, the National House Builders Association, The Canadian Council on Urban and Regional Research, the Quebec Welfare Council, and the Division of Building Research of the National Research Council.

Individuals received assistance through a program of fellowships, bursaries and travel scholarships. These are awarded to students in various fields associated with housing development and town planning. Research studies are also carried out through direct grants to universities for specific projects.

Manufacturing

Manufacturing industries account for about one out of every four employed persons in Canada and for approximately the same proportion of the total production of goods and services in the country. They contributed almost one third of the over-all 1965 to 1966 increase in production of goods and services, adjusted to remove the effect of price changes. They process, to some degree, almost two thirds of all Canadian products exported.

In 1966, 24 p.c. of all employed persons, including the self-employed, worked in the manufacturing industries. If only wage and salary earners are counted (thus excluding most farmers and many small businessmen), the proportion rises to 28 p.c.; however, 32 p.c. of all male wage and salary earners worked in the manufacturing industries in 1966.

Manufacturing industries contributed 26 p.c. of the gross domestic product at factor cost in 1966, a proportion that has remained fairly static for several years. The manufacturing industries paid 28 p.c. of all wages, salaries and supplementary labour income, and received 27 p.c. of all investment income in 1966 (as defined for purposes of the national accounts). This last percentage balances out the effect of their small share in non-corporate investment income and their great share of corporation profits — 45 p.c. in 1966. The manufacturing industries were responsible for 28 p.c. of business gross fixed capital formation in 1966, if new residential construction is excluded.

Diesel locomotives under construction at London, Ont., for use on Canadian railways. Since the changeover from steam to diesel power was completed in the 1950s, the number of diesels in service has not changed greatly but a continuing program of power up-grading is followed by the railway companies.



The volume of production in the manufacturing industries (that is, real domestic product originating in manufacturing) rose 7.4 p.c. in 1966, compared with an increase of 8.6 p.c. in 1965 and 9.3 p.c. in 1964. There was an appreciable slowing of the rate of expansion of production in the durable manufacturing industries, where output increased only 7.6 p.c. over that of 1965 compared with an increase of 11.5 p.c. during the previous year. Production increased 7.3 p.c. in the non-durable manufacturing industries in 1966, compared with the 1965 increase of 6.1 p.c.

Some highlights of developments in various major industry groups in 1966 are given below, with the groups arranged in descending order of percentage increase in the volume of output over that of 1965. Pending introduction of the revised standard industrial classification in these indexes, these groups differ somewhat from those used in the annual census of manufactures (see p. 164).

Electrical apparatus and supplies — up 15.5 p.c., as a result of increases in sales to utilities and other industries engaged in capital investment programs and to consumers.

Miscellaneous manufactures — up 10.2 p.c., continuing the trend of this group, which increased more rapidly than any other over the 1946-65 period.

Transportation equipment — up 9.5 p.c., chiefly as a result of increased production of motor vehicles and parts and of aircraft and parts. Although Canadian dealers sold slightly fewer passenger cars, automotive exports increased sharply influenced by the Canada-United Agreement on Automotive Products signed in 1965.

Chemical and allied products — up 9.5 p.c., reflecting increased capacity and increased demand from a wide variety of users.

Paper products — up 9.0 p.c., mostly as a result of higher exports of newsprint and wood pulp to the United States. Per capita consumption of newsprint was higher in both the United States and Canada in 1966 than in 1965 and Canadian newsprint filled a slightly larger portion of the United States market.

Rubber products — up 8.9 p.c., partly reflecting an increased demand for industrial rubber products. Shipments of tires to manufacturers dropped slightly.

Products of petroleum and coal — up 7.4 p.c., partly reflecting the increase in the number of motor vehicles registered in 1966.

Printing, publishing and allied industries — up 7.3 p.c., based on higher expenditures on advertising and a greater demand for commercial printing.

Foods and beverages — up 6.1 p.c., reflecting only a nominal increase in slaughtering and meat-packing production but substantial increases in such industries as carbonated beverages, distilleries and canning and processing.

Tobacco and tobacco products — up 6.0 p.c., associated with a 7.6-p.c. increase in the number of cigarettes released for consumption.

Iron and steel products — up 5.9 p.c., as a result of an 11.0-p.c. increase in the output of machinery and an increase of only 1.5 p.c. in the output of primary iron and steel. The strength of the machinery industry

was accompanied by a 13.6-p.c. rise in the volume of its fixed capital investment in the form of machinery. Domestic and export demand for farm machinery both increased.

Textile products — up 5.7 p.c., principally because of a 12.6-p.c. increase in output by the synthetic textiles and silk industry, capacity of which has expanded substantially in recent years.

Non-ferrous metal products — up 4.7 p.c., which was more than the 1956-65 average rate of growth but reflected a rise of only 1.6 p.c. in the output of the smelting and refining industry, which was affected by a work stoppage.

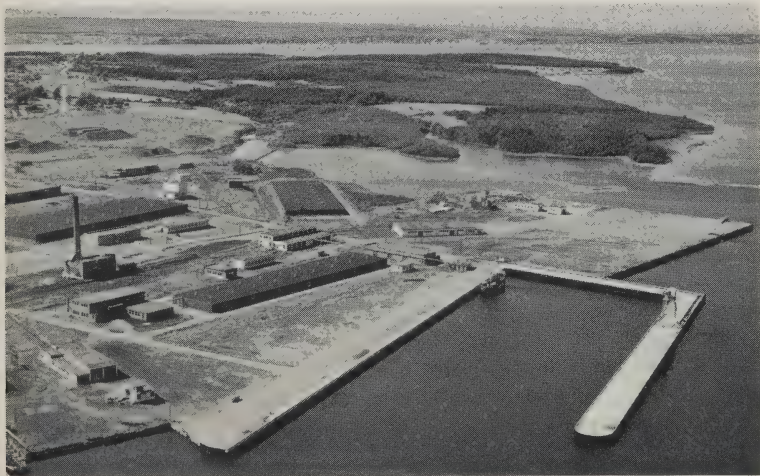
Clothing — up 4.7 p.c.

Wood products — up 4.1 p.c., reflecting a 2.5-p.c. increase in sawmill and planing mill output, which may have been influenced by a decline in Canadian and United States residential construction, and an increase of 8.9 p.c. in furniture output.

Non-metallic mineral products — up 3.3 p.c.; cement production rose substantially but the concrete products industry showed a relatively small increase.

Leather products — up 2.0 p.c., compared with a small decrease the year before.

Regularly published external trade figures are not broken down by particular industries originating or receiving shipments. However, domestic exports of fabricated materials and of end products are roughly equivalent to exports of the products of the manufacturing industries. These two classes of exports



The Japanese factory at Point Edward, Cape Breton Island, is the second automobile assembly plant to be built by overseas interests in Nova Scotia within the past two years. The Swedish factory at Halifax was the first to be attracted by the industrial climate of that province.



"Twin Otter" aircraft under construction at Downsview, Ont. This twin turbo prop transport with seating for 19 passengers is widely used in Canada and elsewhere for short-haul passenger and cargo traffic. It has the advantage of being able to perform from short or semi-prepared runways where other aircraft cannot operate.

totalled \$6,672,000,000 in 1966, an increase of 20.7 p.c. over those of 1965 and about 66 p.c. of all domestic exports in 1966. Exports of fabricated materials rose 7.5 p.c. over such materials in 1965, while those of end products rose 52.8 p.c. End products exports amounted to \$2,455,000,000 in 1966 compared with only \$706,000,000 in 1961.

Net profits before taxes were 5.6 p.c. of sales among corporations classified as manufacturing industries in 1966, compared with 6.3 p.c. in 1965.

Census of Manufactures. The census of manufactures for 1965 recorded 33,310 manufacturing establishments in Canada with 1,570,298 employees, 5.3 p.c. more than the year before. Of these employees, 71.1 p.c. were production and related workers engaged in actual manufacturing activity; the remainder were engaged in office, administrative, sales and distribution, or other supporting work.

The manufacturing industries' shipments of goods of their own manufacture increased by 9.8 p.c. in 1965 over 1964, reaching a record figure of \$33,889,000,000. Preliminary 1966 and 1967 totals of \$36,709,000,000 and \$37,474,300,000, respectively, indicate a continued upward trend.

Increased domestic sales of Canadian-made automobiles and the signing in early 1965 of the Canada-United States Agreement on Automotive Products both helped vehicle makers to become Canada's leading manufacturers, in terms of shipments of goods of their own manufacture. These shipments were valued at \$2,120,000,000 in 1965, an increase of 26.3 p.c. over 1964, when they

held second place following those of the pulp and paper industry. Pulp and paper mills' shipments of goods of their own manufacture also passed the \$2,000,000,000 mark for the first time in 1965, reaching \$2,104,000,000, a figure 6.1 p.c. above that attained in 1964. Thus, for the first time Canada had two individual industries with shipments of more than \$2,000,000,000.

Petroleum refining recorded the third largest shipments in 1965, \$1,384,000,000, or 0.9 p.c. more than in 1964 and the two other industries with shipments of more than \$1,000,000,000 were slaughtering and meat packing plants (\$1,352,000,000, up 12.9 p.c.) and iron and steel mills (\$1,232,000,000, up 11.2 p.c.).

Pulp and paper mills remained the leading industry in 1965 in terms of total employees which numbered 69,897, an increase of 3.2 p.c. over 1964. Second to fourth in this comparison were: sawmills and planing mills with 50,848 employees, up 1 p.c.; iron and steel mills 44,274, up 6.7 p.c.; miscellaneous machinery and equipment manufacturers with 43,956, up 11.6 p.c.; and commercial printing with 35,264, up 5.1 p.c.

Manufacturing Statistics, Selected Years, 1917 to 1966

Year	Employees	Salaries and Wages	Value Added by Manufacture	Value of Shipments of Goods of own Manufacture ¹
	No.	\$'000	\$'000	\$'000
1917	606,523	497,802	1,281,132	2,820,811
1920	598,893	717,494	1,621,273	3,706,545
1929	666,531	777,291	1,755,387	3,883,446
1933	468,658	436,248	919,671	1,954,076
1939	658,114	737,811	1,531,052	3,474,784
1944	1,222,882	2,029,621	4,015,776	9,073,693
1949	1,171,207	2,591,891	5,330,566	12,479,593
1953	1,327,451	3,957,018	7,993,069	17,785,417
1954	1,267,966	3,896,688	7,902,124	17,554,528
1955	1,298,461	4,142,410	8,753,450	19,513,934
1956	1,353,020	4,570,692	9,605,425	21,636,749
1957	1,340,948	4,778,040	..	21,452,343
1958	1,272,686	4,758,614	9,454,954	21,434,815
1959	1,287,810	5,030,132	10,154,277	22,830,836
1960	1,275,476	5,150,503	10,380,148	23,279,804
1961	1,352,605	5,701,651	10,434,832	23,438,956
1962	1,389,516	6,096,174	11,429,644	25,790,087
1963	1,425,440	6,495,289	12,272,734	28,014,888
1964	1,491,257	7,080,939	13,535,991	30,856,099
1965	1,570,298	7,822,919	14,927,753	33,889,425
1966	1,618,500 ²	8,445,000 ³	16,152,000 ⁴	36,709,000 ⁵

¹Before 1953, data represent gross value of production.

²Based on current data as

published in "Estimates of Employees by Province and Industry".

³Based on current

data on average earnings in manufacturing.

⁴Estimated on the basis of the ratio of "value added by manufacture" to "value of shipments of goods of own manufacture" in earlier years.

⁵Based on the monthly survey of shipments by manufacturers.

Ontario and Quebec together accounted for 81.6 p.c. of value added by manufacturing in 1965 — Ontario's contribution was 52.8 p.c. and Quebec's 28.8 p.c. The Prairie Provinces accounted for 6.6 p.c., British Columbia for 8.4 p.c., and the Atlantic Provinces for 3.4 p.c.

The average annual earnings of all employees in the manufacturing industries amounted to \$4,982 in 1965, 4.9 p.c. more than in the previous year. The average hourly earnings of production workers in these industries were \$2.10, compared with \$1.99 in 1964.

Summary statistics on the manufacturing industries for the different provinces and for the groups into which the manufacturing industries of Canada are divided are shown in the following table.

Manufacturing Statistics, by Province and Industry Group, 1965

Province and Group	Total Employees	Salaries and Wages	Value Added by Manufacture	Value of Shipments of Goods of Own Manufacture
	No.	\$'000	\$'000	\$'000
Province				
Newfoundland.....	10,463	42,516	82,407	174,532
Prince Edward Island.....	2,197	6,617	12,724	43,076
Nova Scotia.....	32,100	127,558	222,662	563,155
New Brunswick.....	25,153	99,771	196,237	512,705
Quebec.....	499,177	2,298,750	4,305,379	9,492,182
Ontario.....	774,428	4,100,212	7,881,825	17,675,865
Manitoba.....	46,368	199,059	364,275	913,357
Saskatchewan.....	14,960	69,840	138,692	421,452
Alberta.....	45,455	217,634	475,343	1,283,301
British Columbia.....	119,836	660,100	1,246,866	2,806,165
Yukon and Northwest Territories....	162	869	1,351	3,637
Canada.....	1,570,299	7,822,925	14,927,763	33,889,425
Industry Group				
Food and beverage industries.....	220,700	971,700	2,189,443	6,428,799
Tobacco products industries.....	10,253	50,806	158,376	379,772
Rubber industries.....	26,206	134,151	247,429	474,489
Leather industries.....	32,585	109,806	167,491	343,055
Textile industries.....	76,676	315,082	558,403	1,276,657
Knitting mills.....	24,070	78,661	134,871	308,890
Clothing industries.....	98,659	321,730	495,411	1,063,401
Wood industries.....	91,589	398,939	655,177	1,487,600
Furniture and fixture industries.....	40,374	164,112	267,327	525,213
Paper and allied industries.....	110,180	634,425	1,347,426	2,881,996
Printing, publishing and allied industries.....	78,737	422,225	734,730	1,085,229
Primary metal industries.....	107,504	651,267	1,332,922	2,854,069
Metal fabricating industries (except machinery and transportation equipment industries).....	133,992	691,525	1,228,592	2,466,811
Machinery industries (except electrical machinery).....	70,683	399,342	632,101	1,235,388
Transportation equipment industries..	135,481	830,251	1,455,911	3,864,971
Electrical products industries.....	113,463	584,665	962,655	1,902,539
Non-metallic mineral products industries.....	51,218	268,819	580,154	1,037,982
Petroleum and coal products industries	14,330	102,825	265,288	1,430,572
Chemical and chemical products industries.....	70,975	412,402	1,035,483	1,973,320
Miscellaneous manufacturing industries.....	62,624	280,194	478,572	868,672

ent supermarkets carrying a wide variety of foods and other household goods now at within easy reach of most urban residents. Sales by grocery and combination stores amounted to over \$5,200,000,000 in 1967.



Domestic Trade

Distribution has been defined as the performance of business activities that direct the flow of goods and services from producer to consumer or user. The distribution system therefore involves a complex set of interrelated activities such as buying, selling, storage, grading and standardization, market research, transportation, and so on. These activities are performed by a vast network of firms linking producers to consumers. Although retail and wholesale firms are the most important links in the distributional chain, many of the functions previously performed by such firms have gradually been transferred to manufacturers and specialized facilitating agencies. For example, advertising agencies, market research houses, management consulting firms, as well as banks, railways and insurance companies, all facilitate the movement of goods from producer to consumer. Manufacturers engage in such varied activities as selling, advertising, packaging and wholesaling.

A number of significant changes have occurred in retailing during the past several years. Structurally, the continuing growth in the number of shopping centres, the emergence of the discount department store in the early 1960s and the increasing importance of the voluntary chain movement are, perhaps, the outstanding trends. Of somewhat lesser importance but significant in the long run is the growing consumer acceptance of automatic merchandise vending.

In 1965, there were 386 shopping centres in Canada, located, for the most part, in suburban metropolitan areas. These centres accounted for \$1,865,000,000 or approximately 9 p.c. of total retail trade. There is every indication that shopping centres will continue to absorb an increasingly larger share of the retail trade market.

By 1966, discount department stores had become an important element in the retailing universe. Their sales approached the \$350,000,000 level, which was approximately 1.8 p.c. of total retail trade. Total sales for 1967 were \$429,816,343, a remarkable increase of 24.3 p.c. During the past few years many discount department store outlets have been upgraded both structurally and in commodity composition and now resemble closely those outlets operated by the more traditional department stores.

A recent development in the field of merchandising — one which is possibly of greater significance than the structural changes noted earlier — is the increased use of scientific techniques for management decision-making, such as operations research, electronic computers and centralized data-processing



The processing and packaging of fluid milk is a fully automated process conducted under sterile, government-inspected conditions.

centres. Shortening the time-lag between shifts in consumer preferences and management decision-making, through the use of such techniques, will materially increase the flow of goods from producer to consumer and thereby raise the level of productivity in merchandising.

Estimates of Wholesale Sales, 1963-66

Kind of Business	1963	1964	1965	1966
\$'000,000				
Fresh fruits and vegetables.	321.2	347.8	359.6	372.0
Groceries and food specialties.	1,981.9	2,092.2	2,258.0	2,416.6
Meat and dairy products.	178.5	190.0	221.1	249.5
Clothing and furnishings.	104.8	111.5	115.6	118.1
Footwear.	42.0	43.7	45.8	48.0
Other textile and clothing accessories	211.7	228.1	236.3	235.4
Coal and coke.	151.5	154.7	157.6	136.3
Drugs and drug sundries.	259.5	286.4	308.6	344.4
Newsprint, paper and paper products.	334.9	371.0	387.7	438.6
Tobacco, confectionery and soft drinks	808.8	828.1	881.8	951.0
Automotive parts and accessories. . .	455.3	460.4	486.1	524.4
Commercial, institutional and service equipment and supplies.	142.4	149.7	161.9	192.8
Electrical wiring supplies, construction materials, apparatus and equipment.	185.4	225.4	258.6	308.7
Other construction materials and sup- plies, including lumber.	838.1	931.7	982.2	1,081.5
Farm machinery.	82.6	100.4	112.8	127.5
Hardware.	358.3	391.0	390.4	416.5
Household electrical appliances. . . .	212.4	232.5	277.5	321.9
Industrial and transportation equip- ment and supplies.	825.2	972.6	1,144.8	1,284.7
All other trades.	2,700.0	2,911.3	3,488.9	3,423.6
Totals.	10,194.5	11,028.5	12,275.2	12,991.3

Retail Store Sales by Province and Kind of Business, 1964-66

Province and Kind of Business	Sales			Percentage Change
	1964	1965	1966	1965-66
	\$'000,000			
Province				
Atlantic Provinces	1,602.0	1,707.3	1,798.8	+ 5.4
Quebec	5,108.2	5,409.7	5,708.4	+ 5.5
Ontario	7,299.4	7,950.5	8,437.4	+ 6.1
Manitoba	887.3	924.9	1,005.1	+ 8.7
Saskatchewan	911.7	968.4	1,023.5	+ 5.7
Alberta	1,502.7	1,600.4	1,735.8	+ 8.5
British Columbia (incl. Territories) . .	2,039.6	2,240.6	2,398.8	+ 7.1
Totals	19,350.9	20,801.8	22,107.7	+ 6.3
Type of Business				
Grocery and combination stores	4,356.0	4,621.0	4,917.7	+ 6.4
Other food and beverage stores	717.6	738.4	795.8	+ 7.8
Department stores	1,923.5	2,052.5	2,200.8	+ 7.2
General stores	670.5	716.8	770.4	+ 7.5
Variety stores	462.9	523.5	597.6	+14.2
Motor vehicle dealers	3,378.8	3,859.4	3,915.1	+ 1.4
Garages and service stations	1,788.2	1,858.8	1,974.0	+ 6.2
Men's clothing stores	314.8	332.9	343.7	+ 3.2
Women's clothing stores	363.3	383.3	409.4	+ 6.8
Family clothing stores	268.7	286.8	302.4	+ 5.4
Shoe stores	226.4	232.5	250.3	+ 7.7
Hardware stores	328.4	355.6	387.4	+ 8.9
Furniture, radio and appliance stores	643.3	686.6	747.0	+ 8.8
Fuel dealers	356.6	386.3	392.7	+ 1.7
Drug stores	537.6	563.1	614.7	+ 9.2
Jewellery stores	180.1	192.0	201.6	+ 5.0
All other stores	2,834.2	3,012.3	3,287.0	+ 9.1

Cobs of golden corn, received in large bins from the husker, are graded and placed on racks in preparation for freezing and packaging. Frozen vegetables from this British Columbia plant are distributed to supermarkets and grocery stores across the country.





Shopping centres, like this busy mart, owe much of their popularity to the availability of ample parking space.

Shopping Centre Statistics, 1965

Item	Centres with Five or more Stores		Item	Centres with Five or more Stores	
Centres	No.	386	Sales—concluded		
Stores	No.	5,349	Men's clothing stores.....	\$'000	35,586
Sales	\$'000	1,865,334	Family clothing stores.....	"	22,980
Independent.....	"	339,416	Women's clothing stores...	"	68,224
Chain (incl. department department stores)...	"	1,525,918	Shoe stores.....	"	38,883
Grocery and			Hardware stores.....	"	31,732
combination stores...	\$'000	711,259	Furniture, appliance and		
All other food stores...	"	30,743	radio stores.....	"	21,998
Department stores.....	"	424,725	Restaurants.....	"	33,469
Variety stores.....	"	147,149	Drug stores.....	"	73,640
Garages and service stations"		14,482	Jewellery stores.....	"	14,477
			Miscellaneous.....	"	195,987

Consumer Credit

Credit has become an integral part of the distribution of goods and services and of the buying habits of a large percentage of Canadians. The extension of credit to consumers, even as the extension of credit to businessmen, is the quickest means by which they can expand their assets. It is, in effect, a form of compulsory saving and a stimulus to industry.

Whether or not the securing of easy credit is an advantage to the individual, the fact remains that the amount of balances outstanding on the books of selected credit holders increased 15.8 p.c. in the period 1956 to 1966 while retail sales, the source of most of this credit, increased only 56 p.c. The following figures of credit outstanding do not include real estate credit or other avenues of credit such as that given by service trades, professionals, loans between individuals, and so on.

Balances Outstanding on Credit Extended 1956-66
(Estimates of Selective Items)

Date	Retail Dealers ¹	Finance and Loan Companies	Sub-total	Cash Personal Loans ²	Total Selected Items
\$'000,000					
1956 Dec. 31	798	769	1,567	781	2,348
1957 " "	824	795	1,619	772	2,391
1958 " "	860	787	1,647	941	2,588
1959 " "	916	844	1,760	1,171	2,931
1960 " "	960	873	1,833	1,367	3,200
1961 " "	1,005	791	1,796	1,598	3,394
1962 " "	1,039	853	1,892	1,858	3,750
1963 " "	1,088	929	2,017	2,201	4,218
1964 " "	1,147	1,089	2,236	2,658	4,894
1965 " "	1,215	1,198	2,413	3,178	5,591
1966 Mar. 31	1,128	1,194	2,322	3,236	5,558
1966 June 30	1,126	1,259	2,385	3,382	5,767
1966 Sept. 30	1,140	1,296	2,436	3,450	5,886
1966 Dec. 31	1,264	1,284	2,548	3,514	6,062

¹Includes both charge accounts and instalment credit.

²Includes cash loans made by small loans companies (consumer and personal loans companies) and personal loans made by chartered banks and Quebec savings banks (excluding fully secured and home improvement loans).

In the 1956-65 period, consumer use of credit to purchase automobiles changed significantly. Although sales of new cars reached an all-time high in dollar volume during 1965 with 708,716 units sold for a total of \$2,267,314,000, the proportion bought with the help of sales finance companies declined from 46.6 p.c. to 28.2 p.c. in the 10-year period.

New Passenger Car Sales and Financing, 1956-65

Year	Sold ¹		Financed		P.C. of Total Sales Financed ²	
	No.	Retail Value	No.	Retail Value	No.	Value
		\$'000			\$'000	
1956	408,233	1,128,640	190,109	408,993	46.6	36.2
1957	382,023	1,087,620	171,904	385,043	45.0	35.4
1958	376,723	1,110,724	147,402	335,827	39.1	30.2
1959	425,038	1,240,961	158,022	371,392	37.2	29.9
1960	447,771	1,289,073	164,335	377,851	36.7	29.3
1961	437,319	1,290,026	141,234	330,199	32.3	25.6
1962	502,565	1,482,407	154,561	380,879	30.8	25.7
1963	557,787	1,716,121	168,161	442,186	30.1	25.8
1964	616,759	1,936,258	186,361	511,367	30.2	26.4
1965	708,716	2,267,314	199,587	562,630	28.2	24.8

¹Includes overseas vehicles.

²By sales finance companies.

Consumer Price Index

Canada's consumer price index measures the movement from month to month in retail prices of goods and services bought by a broad middle-income group of Canadian urban people. For a particular item, a price index number is simply the price of the item in one period of time expressed as a percentage of its price in a reference period, usually called a base period. However, indexes for individual goods may be combined to form indexes representing prices of broad groups of goods and services. Thus, the consumer price index relates to the wide range of goods and services bought by Canadian urban families. The index expresses the combined prices of such goods monthly and annually as a percentage of their prices in the base period 1949.

The group of goods and services represented in the index is called the index "basket" and "weights" are assigned to the price indexes of individual items for purposes of combining them into an over-all index. The weights reflect the relative importance of items in expenditures of middle-sized urban families with medium incomes. The basket is an unchanging or equivalent quantity and quality of goods and services. Only prices change from month to month, and the index, therefore, measures the effect of changing prices on the cost of purchasing the fixed basket.

The basket and weights now used in the index are based on expenditures in 1957 of families of two to six persons, with incomes of \$2,500-\$7,000, living in cities of 30,000 population or over. The basket, weighted at 100, consists of the following components with their relative weights: food (27); housing, including shelter and household operation (32); clothing (11); transportation (12); health and personal care (7); recreation and reading (5); tobacco and alcohol (6).

Changes in Index, 1949-66. Between 1949 and 1966 the consumer price index rose 43.9 p.c. Over two thirds of this increase occurred during three distinct periods: the Korean war (1951-52), the investment boom of 1955-57, and the two years 1965 and 1966. Between 1950 and 1952, the index rose from 102.9 to 116.5 for an increase of 13.2 p.c., and between 1955 and 1958 it moved from 116.4 to 125.1, reflecting a rise of 7.5 p.c. Consumer price increases in the latest period, which advanced the index by 6.3 p.c. from a level of 135.4 in 1964 to 143.9 in 1966, gave rise to a Joint Parliamentary Committee enquiry into the upward trend in Canadian living cost conditions and the factors contributing to this trend.

In 1965 the consumer price index averaged 138.7, 2.4 p.c. above its average of 135.4 in the preceding year. In 1966 an acceleration in the advance of consumer prices increased the index by 3.7 p.c. to an average level of 143.9.

During the two-year period 1964-66 all seven main components of the index moved upward. The largest increase occurred in the food index which, after a rise of 2.6 p.c. in 1965, advanced sharply by a further 6.3 p.c. in 1966. Higher retail prices for meats, especially beef and pork, and for dairy products, eggs and vegetables were mainly responsible for the change. Increases were also recorded in the price of fish and of cereals. The only category of food to decline appreciably in price between 1964 and 1966 was fresh and canned fruits. Restaurant meal prices, which in 1966 averaged 10 p.c. above their level of

The famous market at Kitchener, Ont., where producers and customers meet is one of many such markets still flourishing in urban communities, holding an appeal that does not wane.



1964, also contributed to the general increase in the food index over the two-year period.

Apart from food, between 1964 and 1966 the largest increases occurred in the health and personal care and the transportation indexes, which rose by 7.8 p.c. and 6.2 p.c. respectively. Only in these two component indexes, however, was the rate of price rise lower in 1966 than in the preceding year. In the health and personal care group, pharmaceutical prices alone remained substantially unchanged over the two-year period; all other sub-groups, including doctors' and dentists' fees, optical care, prepaid medical care, personal supplies and personal services registered appreciable increases. The advance in the transportation index was attributable to higher car insurance, gasoline, tires and other automobile operation prices, as well as to local transportation and train fare increases. These increases outweighed slightly lower prices for new cars in both 1965 and 1966.

The clothing index rose by 5.7 p.c. between 1964 and 1966, with two thirds of the advance occurring in the latter year. Marked increases were recorded in footwear and in clothing services prices, smaller rises occurred in those for men's and women's wear, while children's wear and piece goods prices edged up only slightly. The housing and the recreation and reading indexes increased identically by 4.5 p.c. in the two years from 1964 to 1966. In the former, most of the rise in the shelter component was attributable to higher home-ownership costs, since rent increased only marginally. In the household operation component, generally higher prices were recorded for household supplies and services and for home furnishings, except appliances which were unchanged. Fuel and electricity prices were also stable over the two-year period. In recreation and reading, significant increases in movie theatre admissions and in newspaper prices contributed most to the index rise.

The tobacco and alcohol index, which moved up by 4.1 p.c. between 1964 and 1966, displayed the least change of all seven main groups during the two years. Tobacco price increases accounted for most of the rise, while smaller increases occurred in liquor prices and beer prices were largely unchanged.

Consumer Price Index Numbers, 1949-66 (1949=100)

Year	Food	Housing	Clothing	Transportation	Health and Personal Care	Recreation and Reading	Tobacco and Alcohol	All Items
1949...	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1950...	102.6	104.1	99.7	105.4	101.8	102.0	102.7	102.9
1951...	117.0	113.7	109.8	113.0	111.0	109.7	111.5	113.7
1952...	116.8	118.0	111.8	117.4	117.8	115.7	113.3	116.5
1953...	112.6	120.0	110.1	119.2	120.1	116.7	108.0	115.5
1954...	112.2	121.6	109.4	120.0	124.5	119.5	107.3	116.2
1955...	112.1	122.4	108.0	118.5	126.7	122.6	107.4	116.4
1956...	113.4	124.2	108.6	123.3	130.0	125.3	107.7	118.1
1957...	118.6	126.7	108.5	129.9	138.2	129.8	109.4	121.9
1958...	122.1	129.0	109.7	133.8	145.4	138.4	110.6	125.1
1959...	121.1	131.4	109.9	138.4	150.2	141.7	114.0	126.5
1960...	122.2	132.7	110.9	140.3	154.5	144.3	115.8	128.0
1961...	124.0	133.2	112.5	140.6	155.3	146.1	116.3	129.2
1962...	126.2	134.8	113.5	140.4	158.3	147.3	117.8	130.7
1963...	130.3	136.2	116.3	140.4	162.4	149.3	118.1	133.0
1964...	132.4	138.4	119.2	142.0	168.0	151.8	120.2	135.4
1965...	135.9	140.9	121.4	147.3	175.5	154.3	122.3	138.7
1966...	144.5	144.7	126.0	150.8	180.9	158.7	125.1	143.9

Co-operatives

Canadian co-operatives are engaged in wholesale, retail and service trades as well as in manufacturing. They are largely oriented toward the agricultural sector although in recent years they have been making strides in appealing to the urban consumer especially in the Prairie Provinces. Co-operatives are



This large manufacturing co-operative at Saskatoon in Saskatchewan, established in 1963 to produce caustic soda and chlorine, proved so successful that by 1967 the company was in a position to undertake a \$5,000,000 expansion.

located in all ten provinces of Canada and nearly all are incorporated under provincial legislation except for a few which operate interprovincially and have been incorporated under the Canada Corporations Act or special federal acts.

For the 1965 calendar year, 2,615 local co-operatives reported a total volume of business of \$1,850,000,000, assets of \$888,000,000, and membership of 1,600,000.

Marketing and purchasing co-operatives, which conducted about 95 p.c. of total co-operative business in 1965, marketed \$1,202,000,000 worth of farm products and sold \$549,000,000 worth of merchandise and supplies. Grains and seeds was the largest class of farm commodities handled at \$574,000,000, followed by dairy products at \$297,000,000, and livestock at \$218,000,000. The main supply items were: food products, \$151,000,000; feed, \$129,000,000; and petroleum, \$90,000,000. Saskatchewan was the leading province in farm marketings with 30 p.c. of the total while Quebec had the largest sales of supplies, accounting for 22 p.c. of the total.

Co-operative wholesales, of which there were nine in 1965, serve as distributors and central marketing agencies for the local co-operatives. The wholesales recorded sales of \$413,000,000 during the year, an increase of 8 p.c. over 1964; sales were divided between farm products (\$159,000,000) and supplies (\$254,000,000).

The Co-operative Development Program which was started in the Canadian North in 1959 has met with the enthusiastic support of the Eskimo population. As of April 1966 there were 22 co-operatives in operation in the Northwest Territories and northern Quebec, with another eight groups in the formative stage. These co-operatives which have promoted the marketing of native handicrafts have pushed their annual sales over the \$1,000,000-mark with some of the individual co-operatives operating at the \$100,000 level.

Two important national co-operative bodies work together to improve co-operative organization, education and promotion. The Co-operative Union of Canada concentrates its efforts in English-speaking areas while Le Conseil canadien de la coopération serves co-operatives in the areas where the French language predominates.

Several Canadian universities conduct courses on co-operative administration and some conduct extension work in this field. The most prominent is St. Francis Xavier University in Nova Scotia which since the early 1930s has carried on extension work in the Maritime Provinces to organize and assist co-operatives. In more recent years short courses have been instituted at universities for co-operative management and personnel and as a regular part of the university curricula. The Coady International Institute was established at St. Francis Xavier University in 1960 and has been providing instruction in co-operative principles and organization to students from abroad, mainly from developing countries where the self-help nature of co-operative organizations has been found to be most appropriate.

Western Co-operative College in Saskatchewan provides short courses for co-operative personnel as well as training courses for foreign students. The Institut coopératif Desjardins in Quebec specializes in social leadership and adult education for Quebec co-operators and foreign students.

External Trade

Promotion of Canada's export trade is the primary function of the Department of Trade and Commerce. A wide range of services is offered to Canadian businessmen to assist them in selling their products abroad. The Department's head office in Ottawa, regional offices in seven Canadian cities and a corps of more than 170 trade commissioners stationed in 49 countries provide these services.

In 1966, export trade totalled \$10,300,000,000, up 18 p.c. from 1965 figures. The income from non-residential travel rose to a record level of \$840,000,000, an increase of 12 p.c. over that of the previous year. During 1966, 11 Canadian trade missions were sent abroad while 17 departmentally-sponsored foreign trade missions visited Canada. The Department also sponsored Canadian exhibits at 44 trade fairs around the world.

Federal Trade Services

The branches of the Department of Industry, Trade and Commerce concerned with trade promotion and assistance are organized into three main categories: external trade promotion, commodities and industries, and trade policy, each headed by an Assistant Deputy Minister. The External Trade Promotion Service is engaged in the cultivation and expansion of foreign markets for Canadian goods and services. The Commodities and Industries Service, working in close co-operation with Canadian producers, manufacturers and other businessmen, studies their export potential in terms of foreign demand and encourages them to pursue the sale of their commodities abroad. The Trade Policy Service negotiates with foreign countries in order to secure the most favourable possible terms of access to foreign markets for Canadian exports, and furnishes Canadian businessmen with information and assistance on matters relating to international trade.

The External Trade Promotion Service is responsible for the Canadian Government Exhibition Commission, the Trade Commissioner Service, the Trade Fairs and Missions and the Trade Publicity Branches, and the Canadian Government Travel Bureau.

The Canadian Government Exhibition Commission is responsible for the organization, design, production and administration of all Canadian exhibits at foreign fairs and exhibitions in which the Canadian Government participates. Advice is offered to private exhibitors and their agents on the most effective manner of displaying Canadian products at trade fairs abroad. The Commission acts as agent for all Federal Government departments in the preparation of exhibits and displays for use in Canada, and is responsible for the international fairs and exhibitions held in Canada that are financed and sponsored by the Federal Government.

The Trade Commissioner Service as the overseas arm of the Department is responsible for promoting Canadian trade and protecting Canadian commercial interests in markets abroad. Its personnel are stationed in 70 offices in principal commercial centres throughout 49 countries.

The functions and operations of the Trade Commissioner Service include: bringing together foreign importer and Canadian exporter; investigating and



An Export Advisory Council, which includes 32 members representing various sectors of Canada's trading interests, assists the Minister of Industry, Trade and Commerce and officers of the Department in formulating ideas and policies with respect to the promotion of export trade.

Canadian products are displayed at fairs and exhibitions abroad under Federal Government auspices. Many different lines of goods were shown at 46 fairs in 10 countries in 1968.





The Canadian Government Travel Bureau has the pleasant task of luring the tourist by giving him pictorial glimpses of the great beauties of this country, unmatched anywhere in their variety and magnificence.

reporting on trade opportunities; securing and making available market and credit information and recommending suitable agents for Canadian companies. By maintaining familiarity with local laws, practices, customs and procedures, the Trade Commissioner Service is able to provide commercial and economic reports to Canadian Government departments, as well as commercial information in response to specific requests received from Canadian businessmen, trade associations, provincial and municipal authorities.

The Trade Fairs and Missions Branch develops and administers the Department's programs for the participation by Canadian firms in trade fairs abroad, the dispatch of Canadian trade missions abroad and bringing departmentally-sponsored foreign trade missions to Canada. It works in close co-operation with industry, other government departments, and other trade promotion branches of the Department.

The Trade Publicity Branch makes use of all communications media to develop public interest in Canada's export program and thereby furthers the Department's objectives both at home and abroad. Its dual function is to stimulate interest in Canadian products in foreign markets, to encourage Canadian manufacturers to look beyond domestic horizons, and to use the Department's many services to increase export business. To accomplish this, the Branch employs advertising, public relations and publicity techniques in varying combinations.

The Canadian Government Travel Bureau encourages tourist travel to Canada, co-ordinating the tourist promotion undertaken abroad by provincial governments and transportation companies, and works closely with national, regional and local tourist associations. It initiates extensive tourist advertising and publicity campaigns abroad, providing tourist publicity material for foreign newspapers, magazines, radio and television outlets, and processes approximately 2,000,000 inquiries annually from potential visitors to Canada. Sixteen tourist offices are operated in the United States and eight overseas.

The Commodities and Industries Service incorporates the Agriculture and Fisheries Branch, the Industrial Materials Branch and the Manufacturing Industries and Engineering Branch. The Agriculture and Fisheries, Industrial

Materials, and Manufacturing Industries and Engineering Branches are principally concerned with finding Canadian sources of supply to meet overseas demands for goods and services. They maintain close liaison with industry to obtain information on Canadian materials, products and services that forms the basis of the Department's trade promotion activities. The liaison also enables them to relay to industry commercial intelligence on export trade opportunities received from the Trade Commissioner Service and other sources. The Transportation and Trade Services Branch is concerned with the role of transportation in relation to trade, the administration of export and import controls, and the compilation of comprehensive trade directories for the Department's use. The Director administers the Department's seven regional offices in Canada.

Trade Policy Services comprises two branches: the Office of Commodity Trade Policy and the Office of Trade Relations. *The Office of Commodity Trade Policy* undertakes detailed studies on sectors of commodities or industries and participates in international negotiations and conferences concerned with trade in primary commodities. *The Office of Trade Relations* is responsible for keeping under review Canada's trade relations with all countries, interpreting foreign regulations affecting Canadian exports, preparing for and participating in international conferences dealing with trade and tariff questions, advising on and contributing to the formulation of Canadian government policy on export financing and economic aid programs, and providing information on these matters to the business community.

The Economics Branch analyses economic developments in Canada and in other countries and conducts studies on market conditions, with particular reference to international trading patterns.

British Columbia actively promotes the use of its great Port of Vancouver, through which flows much of the export and import trade of Western Canada.



The Standards Branch administers federal legislation which regulates the sale and use of commercial measurement devices, and the marking and labelling of articles of precious metals and other products. In many areas it can provide industry with assistance in measurement problems.

The Export Credits Insurance Corporation provides Canadian exporters with export credits insurance and long-term export financing. It reports to Parliament through the Minister of Trade and Commerce. Insurance protection to Canadian exporters is provided against losses arising from causes beyond the control of either the buyer or exporter. Financing facilities are offered for capital goods exports, usually connected with major projects, that require credit terms extending beyond five years. The maximum aggregate insurance liability authorized is \$800,000,000 and total funds available for financing are \$500,000,000.

External Trade Trends

Canada's total external trade has shown a steady growth at varying rates since 1958, rising two-fold from \$9,944,835,000 in that year to \$20,192,161,000 in 1966. Exports (including re-exports) expanded faster than imports, from \$4,894,343,000 to \$10,325,320,000. Thus, in 1966, Canada's total trade for the first time exceeded \$20,000,000,000, registering an increase of 16.1 p.c. over trade in 1965. Exports in 1966 were up 17.8 p.c. over those of 1965 and imports 14.3 p.c., both establishing new high levels. As a percentage of gross national product (at market prices), Canada's foreign trade advanced from 30 to 1960 to 35 in 1966.

Throughout the 1950s, and indeed up to 1960, Canada had an adverse balance of trade, with exports exceeding imports only in 1952 when there was a surplus of \$420,757,000. Although the trade deficit in 1960 stood at \$95,903,000, there has been a surplus in every year since 1961. From \$126,637,000 in 1961 it rose to \$458,881,000 in 1966, with a record trade surplus of \$815,698,000 in 1964, largely due to increased shipments of wheat and wheat flour to the Soviet Union and to Communist China. The export surplus in 1966, though well below the 1964 figure, was more than three times that in 1965 and significantly higher than in 1963. Thus, 1966 was the sixth successive year with a favourable balance of trade, the second highest on record.

Foreign Trade of Canada, 1960-66

Calendar Year	Exports			Imports	Total Trade	Balance of Trade
	Domestic	Re-exports	Total			
	\$'000,000				\$'000,000	
1960	5,255.6	131.2	5,386.8	5,482.7	10,869.5	— 95.9
1961	5,755.0	140.2	5,895.2	5,768.6	11,663.8	+126.6
1962	6,178.5	169.2	6,347.7	6,257.8	12,605.5	+ 89.9
1963	6,798.5	181.6	6,980.1	6,558.2	13,538.4	+421.9
1964	8,094.2	209.2	8,303.4	7,487.7	15,791.1	+815.7
1965	8,525.1	241.6	8,766.7	8,633.1	17,399.8	+133.5
1966	10,070.6	254.7	10,325.3	9,866.4	20,192.2	+458.9

Canadian clothing is increasing in popularity on many world markets despite heavy competition. Good design and quality workmanship soon attract the consumer.



A Canadian sales representative points out to a buyer the attractive features of a Canadian fashion dress line on display in the Maple Leaf Room at the Canadian Consulate General in Chicago.



In Hong Kong, a happy boy dons a Canadian-made sports jacket.

International Background

For many years, Canada has been one of the four or five principal trading nations of the world. It was replaced by the Federal Republic of Germany in third place in 1954 and again in fourth place by France in 1960. Since then, Canada has maintained its position as the fifth largest trading nation of the world. The United States continues to occupy first place, followed by the Federal Republic of Germany, Britain and France in that order. Next in rank to Canada are: Japan, Italy, the Netherlands, Belgium and Luxembourg, and Sweden, among others.

The position of Canada in terms of per capita trade has not been as consistently high as in terms of value of total trade. In the years 1953 and 1956, Canada had the highest per capita trade among the world's principal trading nations. In 1957 and 1958, it took second place, yielding first place to New Zealand in the former year and to Belgium-Luxembourg in the latter. In 1959, Canada's rank was third, dropping to eighth in 1960 and to ninth in 1961. It was

eighth again in 1962, reverting to ninth in the succeeding year. In 1964 and 1965, its rank was eighth again. Canada's place in trade per capita for 1966 among the countries mentioned in the following table is not yet available but, based on the estimate of population as of June 1, 1966, trade per capita had advanced to \$941 from \$879 in 1965.

Leading Countries in World Trade, by Value of Trade and Trade per Capita, 1964 and 1965

Country	Exports f.o.b.		Imports c.i.f.		Total Trade	
	1964	1965	1964	1965	1964	1965
Value of Trade (Millions of U.S. dollars)						
World Trade ¹	151,800	165,500	160,000	175,000	311,800	340,500
United States	26,633 ²	27,532 ²	20,288	23,188	46,921 ²	50,720 ²
Germany, Federal Republic . .	16,221	17,901	14,618	17,482	30,839	35,383
Britain	12,785	13,722	15,992	16,103	28,777	29,825
France	8,995	10,053	10,070	10,341	19,065	20,394
Canada	8,092	8,494	7,555	8,713	15,647	17,207
Japan	6,674	8,452	7,938	8,170	14,612	16,622
Italy	5,956	7,200	7,231	7,378	13,187	14,578
Netherlands	5,807	6,392	7,055	7,460	12,862	13,852
Belgium and Luxembourg . . .	5,590	6,382	5,901	6,497	11,491	12,879
Sweden	3,674	3,971	3,855	4,377	7,529	8,348
Trade per Capita ³ (U.S. dollars)						
Belgium and Luxembourg . . .	576	652	608	663	1,184	1,315
Netherlands	479	520	582	607	1,061	1,127
Switzerland	441	498	602	622	1,043	1,120
Denmark	449	488	554	593	1,003	1,081
Sweden	480	514	503	566	983	1,080
Norway	349	388	536	593	886	980
Trinidad and Tobago	426	414	448	484	875	898
Canada	421	434	393	445	813	879
New Zealand	414	381	370	395	785	776
Hong Kong	274	300	405	412	679	713

¹World total exclusive of China, the U.S.S.R. and countries of Eastern Europe not reporting trade currently. ²Includes military aid extended to other countries. ³Includes trading countries listed by the International Monetary Fund except Aden, the Netherlands Antilles and countries with exports or imports valued at less than U.S. \$100,000,000.

Total world trade has continued to expand from year to year. Preliminary estimates show that in 1966 it rose 10 p.c. in value, against a rise of 8.6 p.c. in 1965. In the 1960s, on the basis of available figures up to 1966, it appears that the highest rate of growth in world trade was achieved in 1964 when the increase over 1963 was 12 p.c.

At the same time, output in 1966 rose considerably in most industrial countries. The average annual rate of output growth in the countries composing the Organization for Economic Co-operation and Development (OECD) has been of the order of 4.5 to 5 p.c. during the past few years. Over-all demand increased rapidly in the early part of 1966, then levelled off slightly. In France, Italy and Japan also the uptrend, which began in 1965, continued through 1966. Growth in real output in the majority of other countries of Europe was somewhat slower in 1966 than it was in 1965, and there was a marked slowing down of economic growth in Britain and Germany.

Expansion continued in the United States economy during 1966, when gross national product rose 8.5 p.c. compared with slightly less than 8 p.c. in

1965. The rate of growth in real terms was, however, only 5.5 p.c. higher compared with 6 p.c. in 1965, as a result of larger price increases in 1966. In fact, inflationary pressures continued to cause concern in North America as well as in the majority of other industrial countries. The problem of rising costs and prices also adversely affected the growth aspirations of the developing countries in varying measure.

Developments Among Regional Economic Groups

Since developments in the international economic arena affecting Canada's competitive position in world trade are of vital interest to the nation, recent developments among the various regional economic groups are briefly noted here. The European Economic Community (EEC), composed of Belgium, France, the Federal Republic of Germany, Italy, Luxembourg, and the Netherlands, moved closer towards integration. On May 10, 1966, the representatives of the member countries adopted a plan by which the Commission of the EEC would gradually assume control of the Community's farm policies over the two years following. This involved the establishment of uniform policies for each farm commodity. It was also agreed that all tariffs on industrial goods moving within the EEC would be eliminated by July 1, 1968, eighteen months ahead of schedule. Internal tariffs are now at 20 p.c. of their original (1957) levels. They were reduced a further 5 p.c. on July 1, 1967, the remaining 15 p.c. to be abolished a year later. By then, the member countries will also have a common external tariff (CXT) based on the arithmetical average of the duties applied by them on January 1, 1957. Quantitative restrictions on trade within the Community have been virtually eliminated. Considerable progress has also been made in dismantling non-tariff barriers.

Canadian "Beaver" aircraft are used extensively in Australia by companies that contract to seed, fertilize and spray farmers' lands.



The seven countries of the European Free Trade Association (EFTA): Austria, Denmark, Norway, Portugal, Sweden, Switzerland, and Britain, on Dec. 31, 1966, completed their main schedule for removing tariffs and quotas, three years ahead of the original schedule laid down by the Stockholm Convention. They abolished the remaining 20 p.c. of protective tariffs on industrial goods traded among them. The majority of agricultural products are excluded from the purview of the Stockholm Convention. They are covered by bilateral agreements insofar as they are traded among the EFTA countries.

The Latin American Free Trade Association (LAFTA) was established under the Montevideo Treaty of Feb. 18, 1960, and the first tariff concessions came into effect in 1962. According to the Treaty, the Free Trade Area should be in operation by the beginning of 1973. The sixth annual conference of LAFTA was held in Montevideo from Oct. 24 to Dec. 20, 1966. Tariff concessions on some 500 products negotiated were brought into effect on Jan. 1, 1967. Regional tariffs are now at 50 p.c. of the level applicable to non-regional imports. Bolivia, the only remaining South American republic, also joined LAFTA as from Feb. 8, 1967. The other members are Argentina, Brazil, Chile, Colombia, Ecuador, Mexico, Paraguay, Peru, Uruguay, and Venezuela.

The five Central American countries — Costa Rica, El Salvador, Guatemala, Honduras and Nicaragua — have formed the Central American Common Market (CACM). The whole idea started with the Multilateral Treaty on Free Trade and Central American Integration of 1958, and was expanded by the General Treaty of Central American Integration, signed in Managua in 1960, providing for the establishment of a common market by the middle of 1966. During the past five years, Central American economic co-operation has achieved considerable progress, which is reflected in the seven-fold increase in intra-regional trade between 1960 and 1965.

A meeting of the Heads of State of the member countries of the Organization of American States (OAS) was held at Punta del Este, Uruguay, in April 1967. It was agreed that efforts should be made, during the period 1970-85, to develop a Latin American common market on the basis of the present LAFTA and CACM structures.

With effect from Jan. 1, 1966, the four Equatorial African countries — the Central African Republic, Chad, Congo (Brazzaville), and Gabon — and Cameroun took an important step toward the integration of their economies through the inauguration of the Central African Customs and Economic Union created by a treaty signed in Brazzaville on Dec. 8, 1964.

A new customs union of seven West African countries — Dahomey, Ivory Coast, Mali, Mauritania, Niger, Senegal, and Upper Volta — came into force on Dec. 15, 1966. Established by a treaty signed in Abidjan on June 3, 1966, it supersedes a previous customs union established in 1959 but never fully implemented. The agreement provides for a common external tariff and the harmonization of customs legislation among member countries.

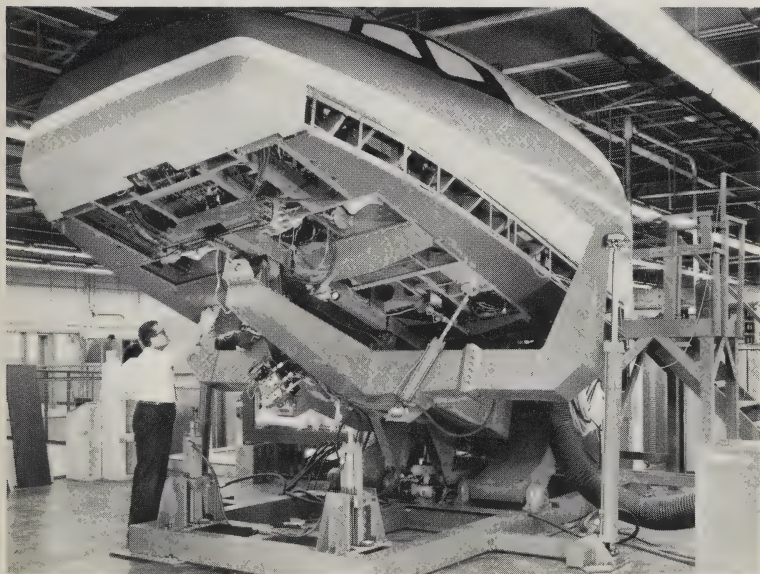
The most ambitious attempt ever made to liberalize international trade was through the Kennedy Round of trade negotiations. This was the sixth in the series of trade talks since World War II under the terms of the General

Agreement on Tariffs and Trade (GATT). The impetus for the Kennedy Round came from the United States Trade Expansion Act of 1962, which gave the American President negotiating powers over a five-year period to June 30, 1967, to reduce existing tariffs in reciprocal negotiations by 50 p.c. from existing levels.

The first ministerial meeting was held in May 1963. Substantive negotiations began in May 1964 and were finally concluded in May 1967. The final Act was signed on June 30, 1967. Almost 50 countries, accounting for about 80 p.c. of world trade, participated in these negotiations. The essential elements in the Kennedy Round have been successfully negotiated. The tariff reductions accepted, in general, will be phased over a period of years but it was agreed that efforts should be made toward a more rapid implementation, especially to facilitate the trade of the developing countries which made requests for tariff reduction on items of special interest to them. It is generally felt that Canada, as a great trading nation, could benefit considerably from the tariff reductions announced.

Canadian Trade Trends

As noted earlier, Canada's foreign trade in 1966 established a new record, with exports valued at 17.8 p.c. higher than in 1965 and imports up 14.3 p.c., compared with increases of 5.6 p.c. and 15.3 p.c. in 1965 over 1964. Even though



A Canadian-designed DC8-61 flight simulator nearing completion in a Montreal plant; these training devices, incorporating a most advanced motion system, are being used by or built for Canadian and seven other large international airlines and for military training purposes by ten western nations.

domestic demand remained high, it had little adverse effect on the export trade. Demand in the foreign markets continued to be buoyant. Export prices were up about 4 p.c. over those of 1965, compared with only about 1 p.c. in the previous two years. The result was substantially higher receipts from exports. Import prices, on the other hand, rose only 1.5 p.c. to 2.0 p.c. in 1966 compared with an insignificant change in the preceding two years. This, coupled with the jump in exports, resulted in a sharp increase in the trade surplus for 1966.



Shipments of iron ore are made from Sept-Îles, Que. Over the past few years, the advent of new production methods and techniques has changed the complexion of iron ore production from a purely mining to a processing operation.

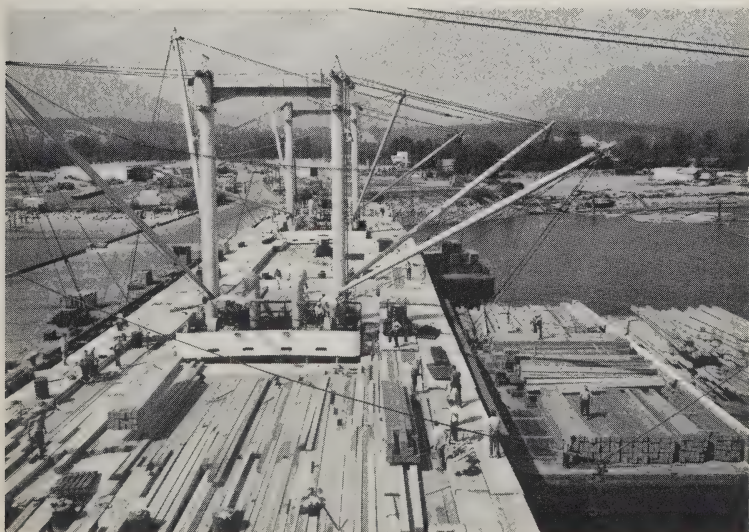
Exports. In the case of total exports (including re-exports), advances were recorded in 1966 in almost all major fields. By far the largest increase was in the export of automobiles and accessories (including passenger automobiles and chassis, other motor vehicles, motor vehicle engines and parts, and motor vehicle parts except engines). These produced gains of 179.1 p.c. in 1966 over 1965, compared with 100.7 p.c. in 1965 over 1964, resulting from the Canada-U.S. Automotive Agreement of January 1965.

Shipments of wheat, which remains Canada's largest export item, jumped to \$1,023,516,000 in 1964, declined to \$840,175,000 in 1965, and picked up again in 1966, reaching a record level of \$1,061,024,000. Thus, while there was a decline of 17.9 p.c. in 1965 from the 1964 level, 1966, in contrast, showed

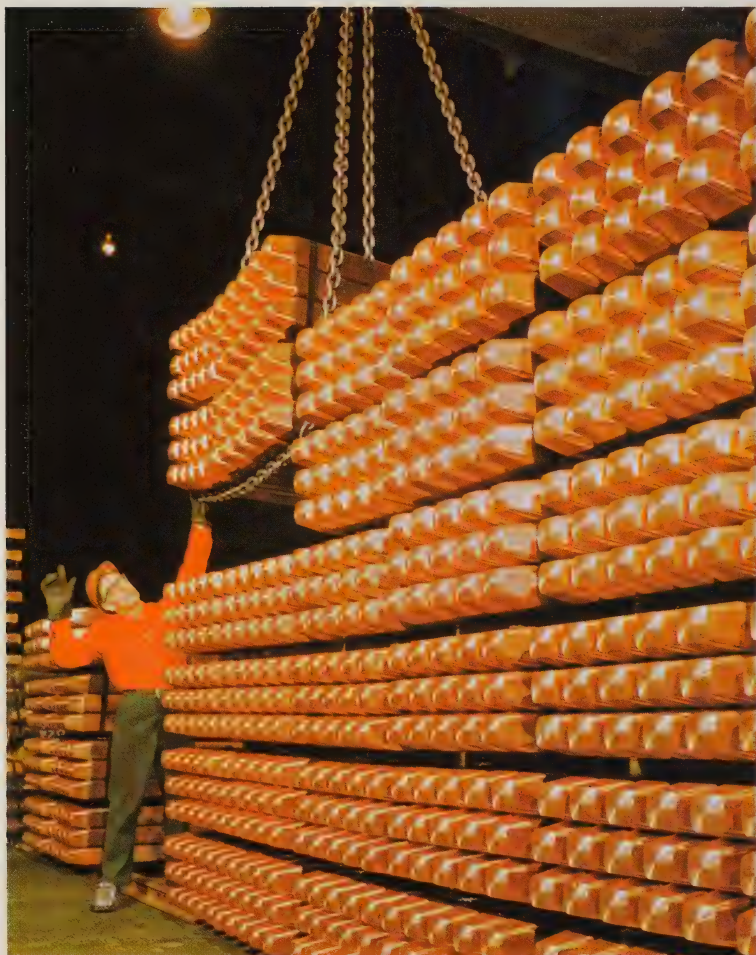


The east coast Port of Saint John, open all year, handles most of the general export-import trade of New Brunswick and, in winter particularly, a portion of that of other provinces. Major commodities, in point of tonnage, loaded for export at this port are wheat, wheat flour and newsprint, and the largest tonnages unloaded are crude petroleum and raw sugar.

British Columbia produces about 70 p.c. of the lumber output of Canada and much of it is shipped through the Port of Vancouver to the United States, Britain and elsewhere abroad.



Nickel bars ready for shipment from the Port Colborne refinery in Ontario. In 1967 Canadian refineries shipped \$219,231,000 worth of nickel shapes—the United States received 2,080,902 cwt. worth \$176,124,000 and Britain 349,736 cwt. valued at \$28,886,000. Canada's nickel mines in the Sudbury district of Ontario and in northern Manitoba produce about five-sixths of the non-communist world supply.





Canadian powdered whole and skim milk is shipped to many countries. In 1967 India purchased 223,721 cwt. and the Netherlands, Venezuela and Cuba each received more than 100,000 cwt.

an increase of 26.3 p.c. over 1965. The principal reason for this increase lies in larger shipments to the Soviet Union, Communist China and India. The Soviet Union and Communist China were the largest importers of Canada's wheat. Exports of \$310,743,000 to the Soviet Union — 29.3 p.c. of all wheat exports from Canada — were 65.1 p.c. higher than in 1965 (\$188,272,000). Exports to Communist China increased by 74.7 p.c. from \$104,625,000 to \$182,819,000, and were 17.2 p.c. of Canadian wheat exports to all destinations. A phenomenal increase of 319.6 p.c. occurred in wheat shipments to India, which suffered from a drought for the second year in succession; it took \$64,432,000 worth in 1966 compared with \$15,357,000 in 1965. Britain, a traditional customer, reduced its intake by 5.6 p.c. to \$132,532,000. Exports to Japan rose 14.5 p.c. from \$90,188,000 to \$103,234,000.

Next in order of importance to wheat and automobiles and accessories was newsprint, which accounted for exports worth \$968,224,000 in 1966, an increase of 11.3 p.c. over \$869,586,000 in 1965. The United States and Britain were the principal buyers. Exports of wood pulp, in contrast, rose by only 5.4 p.c. The United States accounted for three fourths of the exports, taking in \$390,760,000 worth in 1966 compared with \$371,428,000 in 1965. The other main buyers of wood pulp were Britain and Japan; Britain reduced its purchases by nearly 12 p.c. from \$40,404,000 in 1965 to \$35,588,000 in 1966 and Japan's increased by 23.4 p.c. from \$26,420,000 to \$32,590,000.



A sample order of Canadian outboard motors, flown from Sweden, are about to be tested by the prospective customer.

Steel reinforcing rods awaiting shipment to California.



Shipments of aluminum and alloys rose 3 p.c. in 1966; almost half of the sales were to the United States and the remainder went mainly to Britain, South Africa and Japan. Iron ore and concentrates were up by 2.3 p.c. and copper and alloys were 36.5 p.c. higher. There were increases in exports of copper and alloys to all major buyers which included the United States, Norway, Britain and France. Copper ores and concentrates were up 68.2 p.c. Japan was the largest customer with \$55,877,000 (42.7 p.c. of exports to all countries), an increase of nearly 54 p.c. over those of 1965. The other principal customers were the United States, Norway, and Sweden. Crude petroleum exports, which were 15 p.c. higher, all went to the United States. Fertilizer exports increased 25 p.c. over exports in 1965, the main buyers being the United States, Japan, New Zealand and India. Exports of communication and related equipment were 42 p.c. higher; the main increases were in sales to the United Arab Republic and the United States. There was a large decline in shipments to Spain and a small one to Britain.

Exports of all major items were up in 1966, with nominal declines only in lumber (softwood) and nickel in ores and concentrates. However, the declines were only 4 p.c. and 1.4 p.c. respectively. Statistics of principal domestic exports follow.

Principal Domestic Exports, 1962-66

Commodity	1962	1963	1964	1965	1966
	\$'000	\$'000	\$'000	\$'000	\$'000
Wheat	601,518	786,804	1,023,516	840,175	1,061,024
Automobiles and accessories	57,077	87,645	177,386	355,975	993,596
Passenger automobiles and chassis	21,233	28,040	67,667	148,643	429,624
Other motor vehicles	10,073	9,954	14,474	34,530	173,257
Motor vehicle engines and parts	6,273	15,333	31,286	44,358	137,857
Motor vehicle parts (except engines)	19,498	34,318	63,959	128,444	252,858
Newsprint	753,060	759,990	834,646	869,586	968,224
Wood pulp	369,902	405,292	460,854	493,501	520,068
Lumber, softwood	371,410	426,855	449,732	457,967	439,569
Aluminum, including alloys	284,554	302,730	317,937	360,965	372,275
Iron ore and concentrates	220,522	270,949	356,007	360,819	369,009
Petroleum, crude	232,497	233,867	262,023	279,956	321,681
Copper and alloys	163,931	166,517	190,363	194,850	266,067
Nickel and alloys	191,556	175,368	190,145	207,864	212,433
Aircraft and parts	146,917	108,292	248,785	207,037	210,188
Nickel in ores and concentrates	132,308	149,236	166,036	189,336	186,725
Asbestos, unmanufactured	135,638	139,447	155,706	158,657	182,484
Farm equipment (except tractors) and parts	83,154	106,237	131,285	149,715	165,638
Fertilizers and fertilizer materials	60,250	74,756	86,750	111,831	139,560
Copper in ores and concentrates	48,287	53,797	65,573	77,831	130,898
Whisky	84,885	90,125	102,820	116,983	127,508
Fish, fresh and frozen	78,288	81,400	94,362	109,242	117,552
Natural gas	72,423	75,630	97,609	104,280	108,750
Communication and related equipment	51,789	52,193	51,907	70,769	100,459

Imports. Manufactured goods constitute over half of Canada's total imports. Non-farm machinery and parts remained the major imports in 1966, about 9 p.c. higher than in 1965. Automobile parts, the second highest, rose by

23.7 p.c., and freight and passenger automobiles rose 77.6 p.c. to become third replacing electrical apparatus not elsewhere specified, which was only fractionally higher. Engines, except aircraft engines, rose 34.2 p.c. Arrivals of crude petroleum dropped 4.2 p.c. Tractors and parts advanced by 15.4 p.c., aircraft and parts by 10.1 p.c. and farm equipment (except tractors) and parts by 18.4 p.c.

Books and printed matter, which were in tenth place, rose 6 p.c. in 1966 over such imports in 1965. Coal arrivals were 11.8 p.c. higher. Next came fruits and berries, fresh or frozen, which rose 1.9 p.c. Plate, sheet and strip steel declined almost 25 p.c., and fuel oil, 6.1 p.c. Individual values of each of the aforementioned items exceeded \$100,000,000. Imports of each of the next six items were valued above \$70,000,000 — apparel and apparel accessories rose 9.2 p.c., electronic computers 85 p.c., broad woven cotton fabrics 15 p.c., aluminum ores and concentrates 9.7 p.c. and plastics materials, not shaped, 7.5 p.c. The twentieth item, coffee, declined by 8 p.c.

Principal Imports, 1962-66

Commodity	1962	1963	1964	1965	1966
	\$'000	\$'000	\$'000	\$'000	\$'000
Machinery (non-farm) and parts . .	675,768	675,080	874,104	1,128,245	1,225,281
Automobile parts (except engines)	392,687	489,057	555,456	683,025	844,995
Automobiles, freight and passenger	178,955	116,649	163,776	285,442	506,861
Electrical apparatus, n.e.s.	325,316	311,490	335,226	368,354	373,898
Engines, except aircraft engines . . .	121,677	143,781	192,998	235,103	315,497
Petroleum, crude	304,898	334,761	320,637	312,259	299,001
Tractors and parts	140,287	183,732	220,342	200,175	230,973
Aircraft and parts	259,251	159,949	154,648	206,331	227,229
Farm equipment (except tractors) and parts	113,451	140,244	152,290	154,201	182,613
Books and printed matter	116,714	119,320	133,073	151,619	161,058
Coal	74,171	78,632	86,241	126,200	141,038
Fruits and berries, fresh or chilled . .	99,493	102,653	114,502	119,234	121,558
Plate, sheet and strip (steel)	57,898	80,761	121,587	155,745	117,008
Fuel oils	60,159	65,282	76,497	109,395	102,775
Apparel and apparel accessories . .	71,728	67,923	79,967	91,242	99,627
Electronic computers	13,559	16,359	30,311	50,510	93,495
Broad woven fabrics, cotton	72,861	68,077	74,819	70,170	80,767
Aluminum ores and concentrates . .	62,277	67,149	70,424	69,871	76,623
Plastics materials, not shaped . . .	53,205	54,176	61,585	68,972	74,140
Coffee	62,180	65,297	82,620	78,692	72,389

Chief Trading Partners

Over half of Canada's import-export trade is conducted with the United States, which country purchased 60 p.c. of Canadian exports in 1966 compared with 57 p.c. in 1965 and supplied more than 72 p.c. of Canadian imports compared with 70 p.c. in 1965. Britain, traditionally second, reduced its Canadian purchases from 13.8 p.c. of all Canadian exports in 1965 to 11.2 p.c. in 1966. Canadian purchases from Britain were also lower at 6.5 p.c. of total Canadian imports compared with 7.2 p.c. in 1965. Japan, Canada's third largest market, accounted for 4 p.c. of Canada's exports.

Canada's other major buyers in 1966 were the Soviet Union, Communist China (largely involving big wheat shipments), the Federal Republic of Germany, the Netherlands, Belgium and Luxembourg, Australia, Italy, India



Canadian farms produce most of the food products required by the population, the only exceptions being those for which the climate is not suitable. Because consumer demand is high for all-year-round supplies of the fruits and vegetables of southern climes and for the seasonal Canadian produce, imports of such foods are also high.

and Norway, in that order. In 1966, each purchased more than \$100,000,000 worth of Canadian goods. Among Canada's major suppliers apart from the United States and Britain were, consecutively, Japan, the Federal Republic of Germany, Venezuela and France. In 1966, each supplied more than \$100,000,000 worth of goods to Canada.

The largest increase in Canadian exports in 1966 was to India — an advance of over 84.2 p.c. compared with a decline of 8.7 p.c. in 1965; this was, however, due mainly to the difficult food situation in that country. The second largest increase (75.9 p.c.) was in trade with Communist China, again owing mainly to increased wheat shipments, as noted earlier. The same was true of the Soviet Union, exports to that country being 62.4 p.c. higher. Norway increased its imports from Canada by 29.8 p.c., and Japan and the United States each by a little less than 25 p.c. Of Canada's major buyers, Australia, Belgium and Luxembourg, the Federal Republic of Germany, Britain, France and South Africa reduced their imports.



Flour exports, especially in the winter months, figure importantly in traffic at the ice-free ports of Halifax and Saint John. Here a shipment is being stored in preparation for loading.

Canadian imports from Nigeria in 1966 were 251 p.c. higher than in 1965. Purchases of crude petroleum rose from \$1,651,000 in 1965 to \$24,257,000; peanut oil, from \$755,000 to \$3,318,000; cocoa beans, not roasted, from \$4,841,000 to \$6,069,000; and palm kernel oil valued at \$1,181,000 was imported for the first time. Imports from Nigeria of crude natural rubber, except latex, also advanced from \$3,672,000 in 1965 to \$4,254,000 in 1966. The second largest increase in imports was from Sweden (30.5 p.c.), followed by Australia (25.8 p.c.), Hong Kong (25.3 p.c.), the United States (18 p.c.), Switzerland (14.3 p.c.), Iran (11.7 p.c.), France (11 p.c.) and Japan (10 p.c.). Imports from Venezuela were down 15.6 p.c., Belgium and Luxembourg 14.5 p.c., and those from the Netherlands Antilles 11.1 p.c.

The bulk of Canada's trade is with OECD countries, of which both Canada and the United States are members. Since trade with the United States constitutes well over half of Canada's total foreign trade, trade with this group automatically acquires prominence in the total trade picture, as witness the expansion from \$9,204,559,000 in 1960 to \$16,853,583,000 in 1966, an increase of 83.1 p.c.

Trade with the Commonwealth countries declined from 19.5 p.c. of Canada's total trade in 1960 to 13.6 p.c. in 1966. However, in absolute amounts, the value of trade with these countries rose almost 30 p.c. from \$2,123,090,000 to \$2,749,192,000 in the same period. There was also an increase of 39 p.c. from \$427,991,000 to \$593,414,000 during the 1960-66 period in trade with the Latin American Free Trade Association, and trade with the Central American Common Market countries rose 78 p.c., from \$22,202,000 to \$39,498,000.

Domestic Exports by Leading Countries, 1962-66

Country	1962	1963	1964	1965	1966
	\$'000	\$'000	\$'000	\$'000	\$'000
United States	3,608,439	3,766,380	4,271,059	4,840,456	6,027,722
Britain	909,041	1,006,838	1,199,779	1,174,309	1,122,574
Japan	214,535	296,010	330,234	316,187	393,892
Union of Soviet Socialist Republics	3,297	150,123	315,943	197,362	320,605
China, Communist	147,438	104,738	136,263	105,131	184,879
Germany, Federal Republic	177,688	170,969	211,360	189,493	176,800
Netherlands	76,940	87,009	101,582	127,766	143,113
Belgium and Luxembourg	68,169	76,493	100,535	128,011	117,505
Australia	104,965	100,773	145,812	140,372	117,359
Italy	74,521	76,761	62,236	93,223	114,787
India	29,633	53,900	64,042	58,453	107,662
Norway	69,054	73,398	67,582	82,456	107,014
France	57,561	63,428	79,433	87,273	84,541
Venezuela	42,328	46,328	64,075	73,045	75,958
Republic of South Africa	37,525	60,299	69,166	76,226	74,393
Cuba	10,878	16,433	60,930	52,594	61,436
Mexico	41,267	55,572	65,151	51,006	52,145
New Zealand	26,784	30,549	33,714	36,845	41,750
Argentina	22,546	36,992	26,889	32,720	39,529
Poland	37,391	27,200	62,653	31,565	37,404

Well over half the imports into Canada are end-products and prominent among these are materials-handling machinery, equipment and tools required in the construction, development and operation of Canadian industries.

Open-pit mining at a molybdenum property in central British Columbia.





Electronic computers are now among the twenty leading commodities imported into Canada from the United States, reflecting the rapid increase in their use by business and industry.

Imports by Leading Countries, 1962-66

Country	1962	1963	1964	1965	1966
	\$'000	\$'000	\$'000	\$'000	\$'000
United States	4,299,539	4,444,556	5,164,285	6,044,831	7,135,611
Britain	563,062	526,800	573,995	619,058	644,741
Japan	125,359	130,471	174,388	230,144	253,051
Germany, Federal Republic	141,198	144,023	170,392	209,517	235,207
Venezuela	224,275	243,495	270,621	254,670	215,059
France	56,160	58,170	68,687	96,103	106,651
Italy	51,859	55,303	67,462	80,279	86,718
Sweden	25,873	33,410	38,794	55,568	72,541
Belgium and Luxembourg	48,672	47,342	59,198	72,027	61,555
Netherlands	37,049	36,736	39,933	56,274	60,489
Australia	45,216	55,650	59,827	47,372	59,573
Switzerland	28,040	32,469	36,932	43,986	50,279
Malaysia	28,251	31,634	34,566	40,272	41,453
India	43,479	52,664	36,121	43,424	40,093
Nigeria	5,726	7,924	11,264	11,252	39,490
Hong Kong	18,889	21,197	26,321	31,043	38,911
Netherlands Antilles	35,856	35,999	34,885	43,341	38,511
Jamaica	39,721	51,524	47,858	36,000	37,281
Brazil	31,600	36,361	39,533	35,573	35,777
Iran	31,736	42,799	31,085	31,765	35,469

Travel Industry

Since travel is one of the largest single items in Canadian trade, the economic benefits of tourist spending in Canada is most important. Expenditures by visitors stimulate economic growth in all aspects of industrial society but especially in the service industries. In 1966, travel, which attracted \$840,000,000 in foreign capital, ranked fourth among exports, being exceeded only by receipts from the sale of wheat valued at \$1,060,000,000 and newsprint and automotive products, each valued at \$970,000,000. At the same time, travel considered as an import commodity with expenditures of Canadians in other countries totalling \$900,000,000, was exceeded only by the import of automotive products valued at about \$1,650,000,000. The large increases in payments by Canadians and the smaller advances in receipts from foreign visitors played a significant part in the deficits recorded in the balance of payments on travel

account in the 1964-66 period. A surplus balance of \$24,000,000 realized in 1963 was short-lived, reverting to a deficit of \$50,000,000 in 1964, \$49,000,000 in 1965 and \$60,000,000 in 1966.

Balance of Payments on Travel Account, 1962-66

Item	1962	1963	1964	1965	1966
\$'000,000					
Account with the United States—					
Receipts.....	512	549	590	660	730
Payments (incl. Hawaii)....	419	388	481	548	628
Net.....	+93	+161	+109	+112	+102
Account with overseas countries—					
Receipts.....	50	60	72	87	110
Payments.....	186	197	231	248	272
Net.....	−136	−137	−159	−161	−162
Account with all countries—					
Receipts.....	562	609	662	747	840
Payments.....	605	585	712	796	900
Net.....	−43	+24	−50	−49	−60

International travel to and from Canada in 1965 involved 68,000,000 border crossings and an aggregate of \$1,543,000,000 in travel expenditures. In 1966, there were 71,000,000 crossings and \$1,740,000,000 in expenditures. The number of crossings by Canadians returning from trips to other countries totalled 33,900,000 in 1965 and 35,100,000 in 1966, an increase of 1,200,000.

A plane load of travellers disembarking after a trip overseas is a familiar sight at Canada's international airports.



Canadians spent, per capita of population, an average of \$45 abroad in 1966 and \$41 in 1965 compared with \$35 in 1961. On the other hand, 35,500,000 non-immigrants visited Canada in 1966, compared to 34,000,000 in 1965. Even though visitors outnumbered resident travellers, Canadians spent 7 p.c. more abroad in both years than non-immigrants spent in Canada.

Visitors to Canada. Improved tourist facilities and publicity by travel promoters have encouraged non-immigrant visitors to come to Canada. In 1966, entries into Canada by United States residents totalled 35,325,000, an increase of 1,437,700 compared to the figure of 33,887,300 in 1965. Of these travellers, 22,507,300 entered Canada and returned to the United States on the same day while 12,817,700 stayed one or more nights. In 1965, some 21,999,200 were day trips and 11,888,100 visitors remained one or more nights.

Expenditures in Canada by United States residents were estimated at \$730,000,000 in 1966, a significant advance over the \$660,000,000 recorded in 1965. The majority of travellers (76 p.c. or 26,868,000 persons) entered Canada by automobile; compared with 1965, this represents an increase of 664,500 or 2.2 p.c. In 1966, a total of 8,457,000 persons entered Canada by means other than automobile, an increase of 10.1 p.c. over 1965.

Facilities for all kinds of recreational activities from camping to expensive resort hotel living may be found all across the country. An example is Happy Valley near Calgary in Alberta, a year-round resort where one may ski, ski-doo, or swim indoors in winter and golf, fish, swim outdoors or ride in summer.



Overseas visitors travelling direct to Canada totalled 149,502 persons in 1966 compared to 132,920 entries in 1965, an increase of 12.5 p.c. Furthermore, overseas visitors entering Canada via the United States totalled 261,261 persons. Expenditures by visitors from countries other than the United States have been increasing gradually since 1961 when \$47,000,000 was spent in Canada. In 1966, overseas tourists in Canada spent a total of \$110,000,000.

From the questionnaire survey, it is possible to determine certain characteristics concerning visitors entering Canada direct from overseas countries. For example, in 1966, 46 p.c. of the total arrivals originated in Britain, 91 p.c. travelled by plane, 66 p.c. reported visiting friends and relatives as the purpose of their trips, and the overseas visitors remained for an average of 26 days in Canada. In contrast, in 1965, 43 p.c. of the arrivals originated in Britain, 89 p.c. travelled by plane, 66 p.c. reported visiting friends and relatives, and the average length of their stay was 34 days.

Canadian Travel Abroad. By far the greatest exchange of travel is with the United States. Canadian re-entries from that country numbered 34,679,900 in 1966 compared to 33,433,400 in 1965. Of the total expenditures by Canadians abroad, 70 p.c. or \$628,000,000 was spent in the United States including Hawaii, an increase of \$80,000,000 over the preceding year. Most of the visits by Canadians in 1966 were short-term or same-day traffic — 79 p.c. or 27,422,500 — the remaining 7,257,400 residents staying one or more nights in the United States. In 1965, some 27,191,100 Canadians made day trips to the United States and 6,242,300 stayed one or more nights. The automobile is the most popular form of transportation used by Canadians; 28,258,000 persons travelled by this means in 1966 compared to 26,581,000 in 1965.

Although the number of Canadians visiting overseas countries was quite small in comparison with the number travelling in the United States, expenditures were proportionately higher mainly because of higher trans-ocean fares and the money spent for extra lodging and food on longer overseas trips. In 1966, some 502,925 residents travelled overseas and spent a total of \$272,000,000, an increase of \$24,000,000 over the \$248,000,000 spent in 1965. Encouraged by the increase in the number of charter flights offered and by the lowering of air fares, 94 p.c. of Canadians visiting overseas countries travelled by plane, up from 92 p.c. in 1965. Furthermore, based on the 1965-66 questionnaire survey, Canadians reported Britain as their main destination and recreation as their main reason for travelling overseas. Most of the Canadian travellers covered in the survey resided in Ontario and the average length of trip reported was between 26 and 28 days in 1965 and between 23 and 32 days in 1966.

Balance of International Payments

Every hour of every day, commodities are moving into and out of Canada by train, truck, ship, aircraft and pipeline. To supply their everyday needs, Canadians depend on the labour and products of countries in every part of the world. While this great stream of goods, services and savings is flowing into Canada, an important although smaller flow of goods, services and savings is moving outward.

Great as is the two-way traffic in merchandise, it has accounted in recent years for less than two thirds of Canada's international transactions. Canadians earn substantial amounts from the provision of services and savings to non-residents and there are even greater payments by Canada for similar services and savings provided by non-residents. In addition to these international exchanges, which currently equal about \$1,250 per year for every Canadian, there is a vast amount of investment, borrowing and lending between Canada and other countries.

Foreign Capital in Canada

Canadian purchases of goods and services from non-residents have persistently exceeded sales by a sizable margin. This imbalance has been made possible by very large inflows of foreign capital for investment in Canadian industry and, at times, by heavy borrowings by provinces and municipalities. These inflows have been associated with growth and development and have, in turn, stimulated demands for larger purchases of foreign goods and services.

There have been deficits each year since 1953 and they ranged between \$1,100,000,000 and \$1,500,000,000 in each of the years from 1956 to 1960. The largest deficits occurred in the latter part of 1956 and the first half of 1957 and again in 1959. Both were periods of intense economic activity.

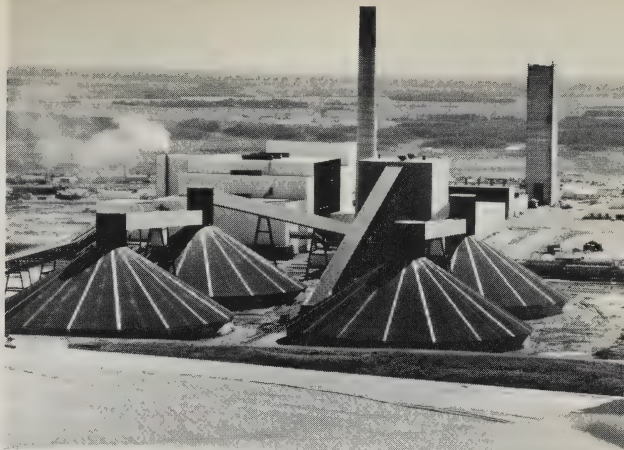
The deficit in the exchange of goods and services moderated in the early 1960s, falling to about \$425,000,000 in 1964. Increased wheat shipments to the Soviet Union, Mainland China and some other Communist countries contributed to a rise in the merchandise trade surplus which topped \$700,000,000 in 1964, while net payments for non-merchandise transactions remained in the neighbourhood of \$1,000,000,000.

With an upswing, however, in the non-merchandise deficit combined with a fall in the merchandise trade surplus, the current account deficit expanded to about \$1,130,000,000 in 1965 and 1966. Rising net payments of interest and dividends, enlarged economic aid abroad and higher increases in merchandise imports than in exports brought about the over-all change. Following similar increases in the receipts and payments, Canada's deficit in the years 1964 to 1966 on travel account stood at an average level of about \$55,000,000. In 1967, however, an impressive rise occurred in the receipts from foreign visitors to Expo 67 and other Centennial events, and a substantial surplus on travel transactions was indicated for the whole year.

Many factors have contributed to the growth of this highly significant element in Canada's international transactions. Rising personal incomes in Canada have opened widening opportunities for spending on non-resident services, including travel. The influx of new Canadians has led to rising remittances by those having family connections outside Canada. Joint defence undertakings and contributions to developing areas have added to Canadian expenditure abroad, as have also transactions which spring from the spreading network of international investment.

The largest element in the deficit from non-merchandise transactions has been interest and dividend payments, reflecting part of the cost of financing

The multi-million-dollar potash mines and plants operating southeast of Esterhazy in Saskatchewan are recent examples of the investment of foreign capital in the development of Canadian mineral resources.



the accumulated deficits of earlier years. With miscellaneous investment income, these transactions have, in recent years, resulted in net payments by Canada of well over \$700,000,000 annually. Some of the effects of the massive imports of non-resident capital have yet to be fully felt.

Large parts of the income accruing to non-residents have been retained for investment in Canada, while many of the new developments have not yet matured to the point where income remittances could be expected. Growing international financial relationships have also been reflected in increasing payments by branch and subsidiary companies for administrative and other services supplied from abroad. Net payments of this kind, including those between unaffiliated business organizations, have been rising and are now well over \$200,000,000 annually.

While the financing of external deficits on current account has been accomplished for the most part with little or no visible difficulty, Canada's international financial position in recent years has experienced several severe

The slaughtering and meat-packing industry, on the other hand, is largely Canadian-controlled, as are other divisions of the food and beverage group, iron and steel mills, sawmills, feed manufacturing, clothing, etc.



but short-lived shocks. The crisis of confidence in 1962 was resolved by remedial measures taken by the Canadian authorities with international assistance. The adverse reaction on the Canadian financial markets of the introduction in 1963 of special tax measures by the United States aimed at improving their balance of payments position was ameliorated when an exemption for the sale of Canadian new issues in the United States was negotiated. Subsequent modifications and extensions to the United States balance of payments program revived concern in Canada but working arrangements were made between the two governments. At the same time, however, the application of these agreements has imposed some constraints on the freedom of Canadian financial and economic policy.

Decade of Increased Investment. The substantial growth in the investment of foreign capital in Canada during the past decade has been the principal factor in increasing Canada's net international indebtedness from \$8,000,000,000 at the end of 1955 to about \$22,000,000,000 at the end of 1965, roughly \$1,000 for every man, woman and child in Canada. In the latter year, Canada's gross external liabilities amounted to well over \$35,000,000,000, of which about half represented direct foreign investment in Canadian enterprises controlled by non-residents. A substantial part of the remainder covered portfolio investment in Canadian corporations and in government and municipal bonds by non-residents.

At the same time Canada's gross external assets totalled \$13,400,000,000, of which nearly \$5,000,000,000 was represented by government loans to overseas countries, subscriptions to international financial organizations and holdings of gold and foreign exchange.

Dependence on external sources for some types of capital, together with the special advantages often associated with this capital, has led to a degree of foreign ownership and control of Canadian industry unique in economic history. Foreign investment accounted for 64 p.c. of the ownership and 74 p.c. of the control of the Canadian petroleum and natural gas industry at the end of 1963, the latest calculation. The mining industry was 62 p.c. foreign-owned and 59 p.c. foreign-controlled. Manufacturing, other than petroleum refining, was 54 p.c. foreign-owned and 60 p.c. foreign-controlled. The degree of foreign ownership and control varies considerably in different branches of manufacturing. Other areas of Canadian wealth such as utilities, merchandising, housing and social capital are Canadian-owned and controlled to a much larger extent than are the petroleum, mining or manufacturing industries.

A substantial part of foreign capital in Canada has taken the form of equity investment and, as a result of the retention of earnings, foreign investments increase each year by some hundreds of millions of dollars more than the capital actually imported. Indeed, during the postwar years to the end of 1964 the earnings accruing to non-resident investors, but voluntarily retained in Canada to finance expansion, have amounted to about \$5,200,000,000. In addition, actual transfers of interest and dividends in the most recent years have approximated \$1,400,000,000 annually. The significant part of the corporate profits that accrues to non-residents is a measure of the important place of foreign capital in the development of the Canadian economy.

Transportation

Since World War II, a revolution has taken place in Canadian transportation. Between 1949 and 1965, total intercity passenger miles travelled increased 2.8 times. Declines of 7.1 p.c. and 5.4 p.c. in intercity passenger miles were recorded by bus and rail transportation respectively, but travel by passenger car and aircraft increased 3.1 times and 8.0 times respectively. Intercity travel by passenger car continues to be by far the most popular mode of travel, accounting for about 85 p.c. of total passenger miles in 1965.

The pattern of freight movement has also changed dramatically. At the end of World War II, railways were hauling nearly three quarters of the ton-miles of freight moved between cities; twenty years later their share was down to 42.8 p.c. In absolute figures, however, total freight tonnage carried by the railways has almost doubled. The proportion carried by water was roughly unchanged during this period, although tonnage more than doubled. Freight moved by highway carriers increased over six-fold.

Oil and gas pipelines, new developments in long-distance transportation since the end of World War II, carried 22.4 p.c. of the total intercity ton-miles in 1965; gas pipelines accounted for 8.1 p.c. of the total in 1965. Air cargo increased over 25 times but still totalled less than one tenth of 1 p.c. of all intercity ton-miles.

Technological Developments

Changes in traffic patterns have resulted largely from the enormous technological changes and developments in transportation during the past two decades, especially in the air, road and pipeline industries. Improved techniques are also evident in the older established transportation industries. The railways have switched from steam to diesel locomotives, built electronically operated freight yards and introduced machine-processing of data for operational, analytical and accounting purposes. Lines have been built into remote mining areas opened up since the War and many miles of uneconomic lines and services have been abandoned, particularly passenger services. The railways have also expanded significantly into the highway transport field. A number of new service innovations such as piggyback, integrated services for package freight and less-than-carload shipments, unitized trains for bulk cargo, and container services are now offered to shippers. The traveller between Montreal and Toronto may now ride fast passenger trains powered by gas turbine engines. These trains are designed on aerodynamics principles and give a smooth ride at high speeds.

The opening of the St. Lawrence Seaway in 1959 brought benefits to inland commerce by enabling all but the largest ocean freighters to sail more than 2,280 miles from the sea up the St. Lawrence and through the Great Lakes to the Lakehead. Many cities along the 8,300 miles of inland shoreline have now become seaports, lowering transportation costs and opening new markets. The 16 locks of the Seaway accommodate ships up to 730 feet long. The introduction of improved vessel movement techniques and new traffic control methods have combined to effect maximum safety and reduce average vessel round-trip transit times. For instance, in the Welland section a new

centralized traffic control centre was brought into operation in the autumn of 1966. Utilizing closed circuit television and telemetry to monitor and direct vessels through the canal, this control system has reduced the average vessel's round trip through the section to 31.7 hours.

Air services have increased and expanded and new jet and turbo-prop aircraft have been brought into service. Supersonic and jumbo aircraft are now planned for the 1970s; the jumbo will carry approximately 500 passengers, and the supersonic planes are capable of travelling at speeds of from Mach 2 to Mach 3. (The speed of sound is Mach 1, about 660 miles per hour.) New airports and hangars have been constructed. In many northern areas of Canada, air is still the only means of transportation; even those settlements that can be reached by ship in the summer depend on aircraft the remainder of the year.

Hovercraft have recently been tested in the northern regions where roads are costly to build and maintain and trial runs were made in the Mackenzie River delta and off-shore in British Columbia. Hovercraft are able to travel over water, ice, snow, muskeg, tundra and fairly rough terrain.

Truckers have been quick to exploit the benefits of improved highways and equipment; freight may now be picked up at a shipper's warehouse in one part of the country and delivered by the same truck to a consignee two and even three thousand miles away. This was rare only ten years ago. The size of trucking companies has also expanded to such an extent that some now operate as many as 2,000 vehicles (trucks, tractors and trailers) and 40 or more terminals. Of the new truck-tractors entering service today, perhaps more than three quarters are diesel. Truckers provide container service and have begun to test the economy of truck-trains which normally are made up of two 27-foot or three 20-foot trailers.

Containers hold promise as an economical means of transporting packaged and some bulk materials. As the container is sealed at the shipper's warehouse, pilferage is reduced to a minimum. It can be transported by truck, rail, ship or plane and is easily transferred from one mode of transport to another. However, as the unit is large and can be quite heavy when loaded, special handling equipment is required, especially at ports. Many ports of the world have been or are being equipped to handle containers.

The ubiquitous family car has given rise to a host of problems including traffic congestion, parking, accidents, air pollution, and the building of extensive thoroughways. These problems are of major concern to urban planners and, in an attempt to circumvent them, new and improved forms of urban rapid transit, including several variations of the electric car, are being studied.

Pipelines for natural gas, petroleum and petroleum products are now a major element in Canada's vast transportation network. Canada has built the world's longest line for the transport of natural gas—the 36-inch Trans-Canada line extending 2,423 miles from the Alberta-Saskatchewan border to Montreal. In 1966, the oil and gas industry's products were gathered and distributed through more than 56,000 miles of pipeline. Now, pipelines for solids are under study to determine the economics and engineering problems in transporting coal, sulphur, potash and other bulk materials.

Canada has two great
waterways,
of importance as
transportation routes
in the areas through
which they flow.



The St. Lawrence-Great Lakes system, extending inland for 2,280 miles, has many harbours and ports of call along its shores. The wharf at Baie Comeau, Que., is of anti-wave and tide design developed by the National Research Council.

The Mackenzie, one of the world's longest rivers, flows 2,635 miles from Alberta northwest to the Arctic Ocean and is navigable throughout most of its length. Here a ship leaves Tuktoyaktuk at the river mouth, towing supplies for nearby settlements.



Shipping

All Canadian waterways, including canals, lakes and rivers, are open on equal terms to the shipping of all countries of the world, except for the coastal trade. In 1961, the Great Lakes and the St. Lawrence River system were excluded from some of the reciprocal provisions of the British Commonwealth Merchant Shipping Agreement, under which ships enjoy equal privileges with Canadian ships in the carrying of goods and passengers from one port in Canada to another port in Canada — in other words, the coastal trade. This means that the exclusive right to carry goods and passengers between Canadian ports in the Great Lakes and the St. Lawrence River system from Havre St. Pierre belongs to Canadian-registered ships. In 1966, the coastal trade carried 60,685,949 tons of cargo, compared with 53,094,252 in 1965. Of this total, 58,950,883 tons, or 97.1 p.c., were carried in Canadian vessels; the remainder were carried almost entirely in vessels of British registry.

During 1966, a total of 131,271 vessels engaged in international or coastal shipping arrived at Canadian ports, compared with 127,945 vessels in 1965 and 134,995 in 1964. The total tonnage of all cargo loaded and unloaded at Canadian ports in international shipping amounted to 137,007,321 tons in 1966 compared with 135,790,161 tons in 1965. Of this tonnage, a total of 41,867,888 tons, or 30.6 p.c., was carried in vessels of Canadian registry.

The major commodities exported by ship in 1966 were iron ore (32,909,924 tons), wheat (15,807,704 tons), gypsum (4,709,891 tons), lumber and timber (3,856,972 tons), newsprint (3,862,629 tons), and pulpwood (1,782,764 tons). Import shipments of bituminous coal (15,654,652 tons), crude petroleum (6,912,389 tons), iron ore (5,038,741 tons), fuel oil (7,850,162 tons), and aluminum ore (3,088,987 tons); these items together constituted 72.7 p.c. of the total unloaded.

Canadian aids to navigation include adequate marking of dangerous areas by lighthouses and other marine signals, an efficient pilotage service, radio signal and direction-finding stations and ice-forecasting and ice-breaking



Vessels are dwarfed as they pass under the new bridge linking the north and south shores of the St. Lawrence River at Trois-Rivières, Que.

services. Comprehensive federal legislation and regulations ensure a high standard of safety for navigation in Canadian waters.

Harbours

Coastlines on three oceans and the magnificent St. Lawrence Seaway penetrating deep into the continent make water transportation of great importance in Canada. Twenty-four ports each handle more than 2,000,000 tons of freight every year, and the maintenance and operation of harbour facilities is essential to the smooth running of the economy.

Nine harbours — at St. John's, Halifax, Saint John, Chicoutimi, Quebec, Trois-Rivières, Montreal, Vancouver and Churchill — are administered by the National Harbours Board, a Crown Corporation established in 1936. The Board provides and operates port facilities such as wharves and piers, transit sheds, grain elevators, cold storage warehouses, and terminal railways. Eleven other harbours are administered by commissions that include municipal as well as federal appointees and there are about 300 public harbours, all of which are under the supervision of the Department of Transport. At most ports, there are additional dock and handling facilities owned by private companies such as railways, and the pulp and paper, oil and sugar industries.

Certain of these ports, such as Sept-Îles and Port Alfred serve large industrial establishments rather than large populations; their cargoes are therefore limited mainly to the movement of such heavy bulk raw materials as iron ore at Sept-Îles and bauxite at Port Alfred.

Foreign and Coastal Trade through Ports Handling over 2,000,000 Tons in 1966

Port	Foreign		Coastwise		Total Freight Handled
	Loaded	Unloaded	Loaded	Unloaded	
	tons	tons	tons	tons	tons
Montreal	5,547,612	6,475,397	4,603,062	6,209,649	22,835,720
Vancouver	10,409,188	1,859,022	15,427,030	13,957,227	21,652,467
Sept-Îles-Pointe Noire . .	17,046,227	462,907	2,175,113	263,531	19,947,778
Port Arthur-Fort William .	3,430,874	420,302	14,493,010	1,164,577	19,508,763
Hamilton	191,495	7,320,080	503,714	2,703,387	10,718,676
Port Cartier	9,229,223	181,301	70,229	10,587	9,491,340
Halifax	2,846,022	4,227,840	1,950,486	382,721	9,407,069
Baie Comeau	3,930,559	1,826,515	277,453	2,391,845	8,426,372
Quebec	1,614,115	1,190,994	165,059	3,396,239	6,366,407
Saint John	1,570,814	2,946,613	1,028,058	434,307	5,979,792
Toronto	223,293	3,159,435	276,594	1,935,356	5,594,678
New Westminster	1,255,247	224,341	2,414,130	1,557,888	5,451,606
Sorel	2,161,509	429,336	34,110	2,532,459	5,157,414
Sault Ste. Marie	241,464	3,596,630	239,174	960,968	5,038,236
Trois-Rivières	1,682,654	1,104,260	1,897	1,733,265	4,522,076
Sarnia	198,860	1,358,906	2,374,345	498,835	4,430,946
Port Alfred	450,311	3,047,963	16,802	637,382	4,152,458
Port Colborne	1,467,299	430,378	396,467	1,129,028	3,432,172
Sydney	125,977	941,635	1,358,586	846,594	3,272,792
Nanaimo (Harmac)	648,186	95,523	253,304	1,702,162	2,699,175
Port Credit	4,411	2,323,367	223,382	445,954	2,997,114
Windsor	2,274,319	1,695,620	558,139	549,039	3,077,117
Victoria	1,123,795	68,053	355,283	901,850	2,448,981
Clarkson	29,550	104,654	530,654	1,551,847	2,216,705



An inland laker of the 730-foot class leaving Lock 3 of the Welland Canal, moving eastward toward Lake Ontario. In 1967, 52,809,000 tons of cargo passed through the Canal.

Canals

The major canals in Canada are those of the St. Lawrence–Great Lakes waterway with seven locks, providing navigation for vessels of 25-foot draught from Montreal to Lake Ontario; the Welland Ship Canal by-passing the Niagara River between Lake Ontario and Lake Erie with eight locks; and the Sault Ste. Marie Canal and lock between Lake Huron and Lake Superior. These 16 locks overcome a drop of 580 feet from the head of the lakes to Montreal.

The Seaway accommodates all but the largest ocean-going vessels and the upper St. Lawrence and Great Lakes are open to 80 p.c. of the world's salt-water fleet. During 1966 the volume of freight carried through the St. Lawrence section of the Seaway (Montreal to Lake Ontario) totalled 49,580,045 tons compared with 43,378,663 tons in 1965 and 13,499,698 tons in 1956, the peak year before the opening of the Seaway in 1959.

Subsidiary Canadian canals or branches include the St. Peter's Canal between the Bras d'Or Lakes and the Atlantic Ocean in Nova Scotia; the St. Ours and Chambly Canals on the Richelieu River, Quebec; the Ste. Anne and Carillon Canals on the Ottawa River; the Rideau Canal between Ottawa and Kingston; and the Trent and Murray Canals between Lake Ontario and Georgian Bay in Ontario. The commercial value of these canals is not great but they are maintained to control water levels and permit the passage of small vessels and pleasure craft. The Canso Canal permits shipping to pass through the causeway connecting Cape Breton Island with the Nova Scotia mainland. During 1966, 111,188,312 tons of freight passed through all Canadian canals in 23,738 vessels.

Railways

More than 80 p.c. of railway transportation in Canada is provided by two great transcontinental railway systems—the government-owned Canadian National Railway System and the Canadian Pacific Railway Company, a joint-stock corporation. The two systems are highly competitive. Both, in addition to their far-reaching railway operations, conduct other transport activities: fleets of inland and coastal vessels, ocean-going steamships, highway transport services, large hotels and resorts, and extensive passenger and freight air services over domestic and international routes. The Canadian National and the Canadian Pacific jointly operate a national telecommunications system that employs micro-wave, high-speed teletype and private wire networks, telex and data and weather facsimile transmission, providing rapid communications throughout Canada and connecting with all parts of the world.

The Pacific Great Eastern Railway, owned by the British Columbia Government, operates over an 800-mile route from North Vancouver to Fort St. John and beyond. Its recent construction has opened up the vast interior of the province, stimulating large-scale industrial development. Connections at Vancouver link this line with other Canadian railways and with United States lines.



The CN's new Turbo is the fastest inter-city train on the Continent. It will cover the 335-mile run from Toronto to Montreal in a minute under four hours. The all-aluminum cars are propelled by gas turbine engines that have a potential top speed of 120 miles an hour.



Ottawa's central railway station, which had been in use since 1912, was abandoned in 1966 and the tracks leading to it through the city were removed. The new station, some distance away, is an attractively designed building offering much better and more convenient facilities for the traveller.

Railway operating revenues of all lines in Canada, excluding highway transport, telecommunications and other ancillary operations, totalled 1,481,000,000 in 1966, up 7.9 p.c. from the previous year. During the same period, railway expenses (including taxes) rose 6.4 p.c. to \$1,375,000,000 and income (including net operating revenues and other rail income but excluding fixed charges) amounted to \$139,500,000.



Construction proceeds on a 235-mile track that will give access to Alberta's northern resources—by the end of 1967, 150 miles had been completed.

Revenue freight traffic carried by Canadian railways in terms of weight and distance aggregated 95,098,000,000 ton-miles in 1966, up approximately 8,000,000,000 from the previous year. The average length of haul was greater at 463 miles, and the average revenue per ton-mile rose slightly to 1.39 from 1.38 cents.

The number of passengers carried fell 5.7 p.c. in 1966 to 23,194,555 with commuter travel increasing 5.6 p.c. and non-commuter travel declining 3.0 p.c. from 1965. Passenger-miles travelled dropped 2.9 p.c. to 2,587,000,000 while the average journey increased from 108 to 112 miles. The average revenue earned per passenger-mile was 2.4 cents.

The two transcontinental railways continue to make improvements in service and operating efficiency. The development of specialized equipment to serve particular industries continued; new branch lines were being constructed to serve mineral developments in various parts of Canada; and further advances were made toward integrating the handling of merchandise shipments by the various transportation facilities operated by the two systems.

Construction of Canada's first pioneer railway to be built into the Northwest Territories by Canadian National for the Federal Government began in 1961 and was completed in 1964. The 430-mile railway from Peace River, Alberta, to Pine Point on the south shore of Great Slave Lake provides easy access to the rich lumber, oil and mineral reserves of the north.

Road Transport

In 1966, there were 7,035,261 motor vehicles registered in Canada — 78 p.c. were automobiles, 18 p.c. trucks and road tractors, less than 1 p.c. buses of all types and 3.4 p.c. other vehicles such as motorcycles and farm tractors, licensed in accordance with the regulations of the various provinces. Total Canadian vehicle registrations showed that there was one passenger automobile for every 3.6 persons compared with the United States ratio of one passenger automobile for every 2.6 persons.

In Canada, the automobile continues to be the most used means of transportation by road, with intercity bus and urban transit systems playing a less significant part. In 1965, in terms of estimated intercity passenger-miles by all modes of transport, automobiles accounted for approximately 85 p.c. of the total.

In 1966, buses operating on intercity and rural routes carried over 49,800,000 passengers, earned \$60,769,000, and travelled more than 107,500,000 miles. The average fare per passenger on these services was \$1.22. Passenger bus travel was estimated to account for slightly more intercity passenger-miles than rail passenger travel in 1966. Bus lines were estimated to perform 5.3 p.c. of the intercity passenger-miles by all modes of transport while rail accounted for an estimated 3.9 p.c.

With a large part of its population concentrated in urban areas, Canada relies heavily on urban transit systems to provide local transportation services. Of the total 1,036,423,243 passengers carried for a gross operating revenue of \$182,551,307, the municipally owned systems serving the larger population centres carried 931,356,872 passengers and earned \$164,487,545, while the privately owned systems in smaller centres carried 105,066,371 passengers and had



Montreal's subway became operative in 1966 and has since proved a great boon to heavy pedestrian traffic. It connects with surface buses and a single city-wide fare carries the passenger to his destination.



The Lafontaine tunnel which runs under the St. Lawrence River from the south shore to Montreal Island was opened in time to provide a welcome shortcut for visitors to Expo 67.

operating revenues of \$18,063,762. The average fare of the municipally owned systems — 17.7 cents in 1966 — was 2.7 p.c. higher than the 17.2-cent average fare charged by the privately owned systems.

The increasing ownership of automobiles and the growth in the size of the urban and suburban areas have created serious problems for urban transit systems. In an effort to provide more flexible services at minimum costs, transit systems have been progressively abandoning the use of street cars and trolley buses in favour of motor buses; only Toronto still uses street cars and a few systems still use trolley buses.

In an effort to ease downtown traffic congestion and to provide rapid transit services to large numbers of people, Toronto and Montreal have constructed subway systems. Toronto completed the original 4.5-mile subway in 1954 and extensions were opened to traffic in 1966 and 1968. The length of the system is now 21 miles.

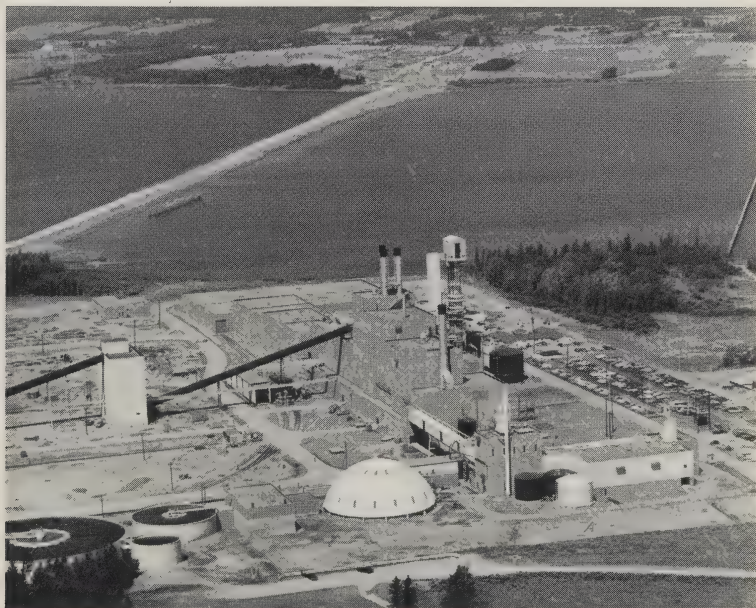
Montreal's \$213,000,000 rapid-transit system — Métro — was opened in the autumn of 1966, after four years of excavation and construction work. It operates entirely underground and uses cars equipped with pneumatic wheels.

The construction and maintenance of Canadian roads and streets are primarily the responsibility of the appropriate provincial and municipal governments; the Federal Government provides financial assistance in an effort to ensure the development of the integrated systems of highways and streets necessary for today's large volume of traffic. Total expenditures on highways and urban streets came to \$1,771,039,000 in 1966, or \$88 per capita.

As a result of this mutual effort, Canada had 485,315 miles of roads and streets by the end of 1966 of which 74 p.c. were surfaced — surfaced includes rigid pavement, flexible pavement and gravel. In 1966, there were 14.5 motor vehicles for every mile of road and street and 19.6 motor vehicles per mile of surfaced road and street in Canada.

To meet the problems caused by increasing traffic congestion, many cities in Canada have completed or are planning the construction of limited access thoroughways to speed the inbound and outbound traffic between urban and suburban areas, and to permit through-traffic to by-pass the congested central areas.

The new causeway across the harbour of Pictou, N.S., leads to Abercrombie Point, where a \$55,000,000 sulphate pulp mill was opened in 1967.



The trucking industry continues to expand and develop its technology. It is one of the most important providers of freight transportation, especially of packaged goods, over short and medium distances. In 1966, registrations of motor trucks and tractors reached 1,266,024 and for-hire carriers, the most important class in providing transportation service to the public in general, recorded revenues of \$765,509,000, an increase of 15.4 p.c. over the previous year. Recently, private enterprises are showing an increased interest in developing trucking operations.

Traffic accidents continued to exact an alarming toll of deaths, injuries and damages on Canadian streets and highways in 1966 — 5,281 persons were killed and 161,197 injured in 426,105 accidents.

Civil Aviation

Vast distances, rugged terrain and extreme variations in weather have shaped the growth and development of civil aviation in Canada. The smooth operation of aircraft, airports, traffic controls, communication, navigational facilities and meteorological services is the result of many years of planning, training and research.

Competition and rapid technical developments have greatly increased the speed and efficiency and have reduced the costs of air transportation in Canada. The economic use of larger and faster aircraft is made possible by the great distances to be covered and jet services are now common on all the major routes. The travelling time between Vancouver and Toronto has been reduced to about four hours. New, well-designed terminal buildings, automated methods of baggage handling and even moving sidewalks help speed the passenger through the airport, and efforts are being made to devise ways of shortening the travel-

The international airports of Canada now have new, greatly enlarged and modernized passenger, freight and control facilities. The terminal almost completed at Vancouver has four levels, the lowest containing parking space for 420 cars.





Moving sidewalks at the International Airport at Montreal eliminate the long walk between the main lobby and the departure gates, and help passengers to move quickly from the aeroquay to the immigration, health and customs facilities in the main terminal building. The conveyors travel 120 feet a minute.

ling time between airports and the central areas of the cities they serve. Modifications to adapt international airports and terminal buildings to the requirements of jumbo jets and their passengers and to prepare airports and traffic control facilities for the supersonic jets already on order are close to implementation. The growing importance of aircraft as cargo carriers is resulting in a parallel revolution in the design of freight handling equipment, containers and aircraft cargo compartments.

Two major airlines, Air Canada and Canadian Pacific Airlines, form the nucleus of Canada's freight and passenger air service. In addition, four domestic air carriers operate scheduled commercial services in Canada and more than a score of United States and other foreign carriers operate regular commercial air services between Canada and the United States, Central American or overseas countries. In 1966, Canadian carriers transported almost 7,500,000 passengers and 357,000,000 lb. of goods. Canadian and foreign carriers operating out of Canada together carried more than 9,000,000 passengers and 414,000,000 lb. of goods.

In addition to scheduled services, some 400 small airlines operate non-scheduled services, many of them to parts of Canada that are inaccessible by other means of transportation. They also supply a wide variety of other services, from recreational flying and flying training to such highly specialized activities as crop dusting and aerial construction. Flying farmers are to be found over both eastern orchards and western prairies and the executive aircraft is a common sight at many airports.

On Dec. 31, 1966, there were 28,920 airmen licensed in Canada, including pilots, air navigators, air traffic controllers, flight engineers and aircraft maintenance engineers. Courses in air traffic control, meteorology, radio operation and inspection, and ice observation are among those given by the Department of Transport.

At the end of 1966 there were 8,310 civil aircraft registered in Canada — 5,778 private, 2,329 commercial, and 203 government-owned aircraft. Canadian air carriers transported 7,461,687 passengers during 1966, 13.6 p.c. more than in 1965 and more than double the number carried in 1956. Passenger-miles on scheduled services have almost quadrupled over the past ten years. Revenue goods carried during 1966 amounted to 178,550 tons, an increase of 16.6 p.c. over comparable figures for 1965. Cargo ton-miles have increased five-fold and mail ton-miles have more than doubled since 1956.

The number of airport licences in force as of Dec. 31, 1966, was 711. Of this number, 343 were for land and 368 for seaplane bases. Revenues at airports operated by the Department of Transport totalled \$24,000,000 in the year ending Mar. 31, 1966, compared with \$22,574,000 in the previous fiscal year.

The assets of Canadian air carriers have more than tripled over the past ten years, from \$143,425,256 at the close of 1956 to well over \$400,000,000 in 1966. This increase reflects not only the greater scope of operations of the larger carriers, but the acquisition of larger, faster aircraft, and the gradual upgrading of fleets from piston to turbo-prop to jet. The increased scope of Canadian carriers' operations is reflected in the table below.

Operations of Canadian Air Carriers 1966 and 1965

Item	Scheduled Carriers	Non-scheduled Carriers	Total 1966	Total 1965
Operating revenues.....	\$ 403,049,847	57,506,616	460,556,463	393,623,066
Unit toll transportation—				
Passengers.....	\$ 327,599,643	3,537,477	331,137,120	283,513,262
Express.....	\$ 6,895,888	78,460	6,974,348	5,863,954
Freight.....	\$ 26,218,168	1,475,110	27,693,278	22,457,379
Excess baggage.....	\$ 1,933,220	99,465	2,032,685	1,977,335
Mail.....	\$ 19,833,121	741,120	20,574,241	18,752,891
Bulk transportation (charter and contract).....	\$ 14,745,201	39,982,059	54,727,260	48,254,033
Specialty and non-flying services.....	\$ 5,824,606	11,592,925	17,417,531	12,804,212
Operating expenses.....	\$ 378,175,342	51,619,930	429,795,272	368,223,425
Operating income.....	\$ 24,874,505	5,886,686	30,761,191	25,399,641
Net income after taxes.....	\$ 11,258,389	4,452,608	15,710,997	13,508,885
Revenue passengers carried... No.	6,754,438	707,249	7,461,687	6,570,449
Revenue goods carried... lb.	247,720,396	109,380,423	357,100,819	306,392,747
Cargo (freight and express)...	199,453,199	106,745,841	306,199,040	253,811,436
Excess baggage.....	1,275,287	606,667	1,881,954	2,141,076
Mail.....	46,991,910	2,027,915	49,019,825	50,440,235



Helicopters are the workhorses of the air, performing all kinds of transport duties impossible by other means. This Canadian Coast Guard twin turbine craft serves the west coast area from Alaska to Vancouver Island, supplying lighthouses, maintaining unmanned lights and other navigational aids and also, on occasion, serving on search and rescue missions.

Communications

Communications media in Canada have been shaped to meet the needs of the country. Great networks of telephone, telegraph, radio and television facilities, inextricably bound together, provide adequate and efficient service which, in this era of electronic advancement, is under continual technological change and development. That the familiar challenges of the country — its size, its topography, its small population — have been overcome in the field of communications is evidenced by the fact that today Canada possesses communication facilities and services second to none in the world. And these facilities are somewhat unique in structure. On the one hand there is a group of telephone companies acting in concert to provide national services and on the other there are two railway companies jointly providing a most comprehensive total communications network, so that almost all Canadians wherever located can communicate with each other and with the rest of the world by the simple action of twisting a dial or pushing a button.

Telephones

There are some 2,300 separate telephone systems in Canada ranging in size from rural co-operatives serving a few customers to large provincially or privately owned systems. The largest, the Bell Telephone Company of Canada, operating in Quebec, Ontario, Newfoundland and the Northwest Territories,

owns approximately 62 p.c. of the country's 7,900,000 telephones. The British Columbia Telephone Company owns 10 p.c. of the total. Three provincially owned systems operate in the Prairie Provinces and the Atlantic Provinces are served by four private companies. Canadian National Telecommunications operates telephone exchanges in the Yukon and the Northwest Territories and has nearly 19,000 telephones in Newfoundland.

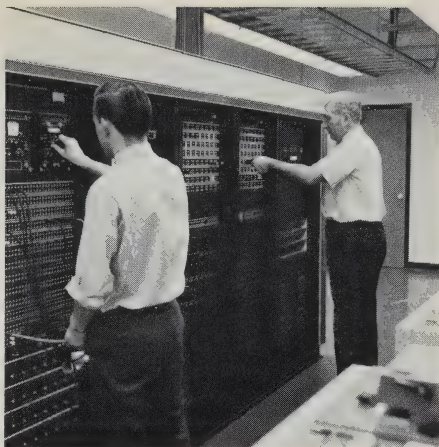
Although the systems vary in size and scope, their aim is essentially the same — to provide good telephone service to the communities they serve and to provide connections with telephones elsewhere. To attain this goal co-operation was necessary and led to the formation of organizations, the best known of which is the Trans-Canada Telephone System, whose aims are to develop and maintain an all-Canadian coast-to-coast long-distance network and to establish uniform operating procedures to speed the handling of long-distance traffic. Eight of the largest systems are full members and the Canadian Overseas Telecommunication Corporation is an associate member. The Telephone Association of Canada was formed in 1921 to promote co-operation and the interchange of technical and operating information within the telephone industry. This association enables members to keep up with new technological advances made each year.

Canadians make extensive use of telephones. Between 1956 and 1966, the number increased from 4,500,000 to 7,900,000 an average of one for 2.6 persons. Canadians continue to lead the rest of the world in the number of calls per capita. Latest figures show the estimated number of calls each year on all systems to be 12,000,000,000, an average of 1,679 calls per telephone and 653 per person. Long-distance calls account for 2.4 p.c. of the total, most of them to points in Canada or between Canada and the United States.

About 97 p.c. of all telephones in Canada are now dial operated. As well as being able to dial local calls, many customers can also dial long-distance calls without the intervention of an operator. This is known as Direct Distance Dialing and plans call for its eventual extension to overseas telephone traffic. This will be facilitated by the progressive introduction of All Number Calling throughout Canada and the United States. With continent-wide Direct Distance Dialing, Canada and the United States have been divided into 122 numbering areas, each distinguished by a special three-figure code. This area code and the seven-digit number provide a unique telephone number not duplicated elsewhere in North America. It is expected these new numbers will be able to cope with future growth well beyond the year 2000 without any increase in the number of digits that must be dialed, and will be compatible with the numbering systems in virtually all overseas countries.

The provision of local and long-distance service is the major activity of the telephone industry. But companies also offer their customers an increasing variety of communications facilities, for instance, teletypewriter services, inter-communication systems and private radio and microwave services. In 1958 the Trans-Canada Telephone System opened the largest single microwave system in the world. This coast-to-coast communications link was engineered not only to carry the growing amount of telephone traffic but also to provide for the expansion of network television across Canada.

Master control board of the computer-controlled transmission system at CNT's Data Central, Toronto, the present major function of which is the handling of airline and railway reservations.



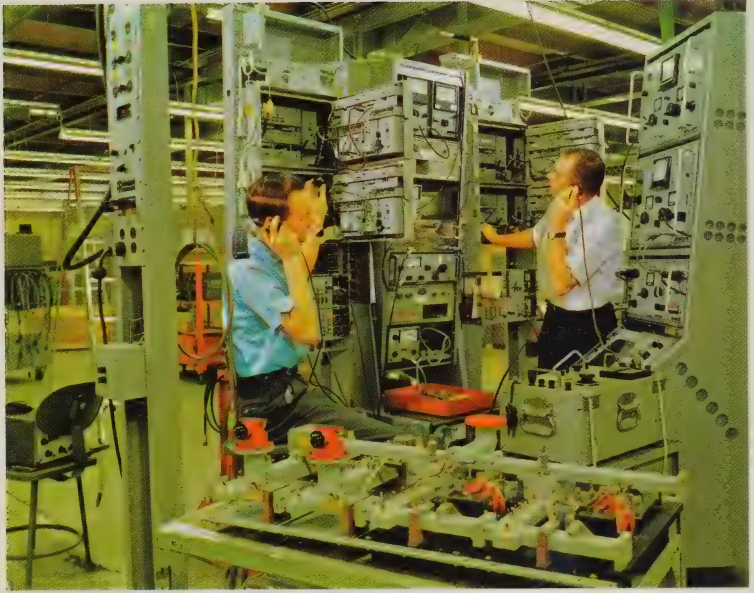
CN-CP Telecommunications

Canada's two major telecommunications companies, Canadian National and Canadian Pacific, reach into the lives of every citizen with a diversity of services ranging from messenger-delivered telegrams to computer-oriented communications systems for corporations, government departments, transportation systems and the military. CN-CP link Canadians to each other and to the world.

The backbone of the CN-CP Telecommunications operation is their Transcontinental Microwave System which spans the country from St. John's, Newfoundland to Vancouver, since the completion of the Montreal-Vancouver section in early 1964. This network is the North American land link for the Commonwealth telecommunications system binding Britain, Canada, New Zealand and Australia. It is equipped to handle the diverse communications

The Data Central is also used by the Meteorological Branch of the Department of Transport to transmit weather maps across the country for instant weather information.





Communications equipment is manufactured in a British Columbia plant, which supplies a portion of the large requirements for electronic products resulting from the great technological advances made in the field of communications during the past decade.

services of Canadian National and Canadian Pacific from simple point-to-point teletype circuits to the complexities of television broadcasts.

The evolution of telecommunications indicates that machine-to-machine communications will, in a few years, surpass man-to-man exchanges in volume of information. CN-CP are in step with this trend and already have services operating along these lines. A computer-operated dial quotation service for the Toronto Stock Exchange, for example, gives TSE-approved subscribers throughout North America up-to-the-minute statistical information at the twist of a dial.

In 1967, CN-CP introduced an automatic circuit switching system of advanced design — the first of its kind in Canada — which will meet a wide variety of the needs of business and government. Known as the Broadband Exchange Service, it is an all-in-one package that will enable subscribers to exchange intelligence from high-speed teleprinters, business machines, facsimile machines and computers. Since it is an “alternate record-voice” service, the Broadband Exchange Service may be used between subscribers for telephone conversations as well.

The system is designed to enable subscribers, by push buttons, to call up a channel in one of several bandwidths up to 48 kilocycles. The network can now

reach the four-kilocycle bandwidth, and broader bandwidths will be made available as they are needed. The choice of bandwidths will depend on the type of equipment to be used in a given transmission. The equipment used by the subscriber may be of the type that transmits analog signals, such as the human voice, and facsimile equipment. Alternatively, it may be of the type that transmits digital signals such as are produced by teleprinters and most business machines.

To send a copy of a drawing, or to transmit high speed data will be a matter of selecting the appropriate location and bandwidth, informing the recipient of what is coming, and transmitting. A voice/data subset, about the size of a small dictating machine, is provided to each subscriber to serve as his own push-button control centre for transmitting data.

An ever-increasing number of business messages is being moved on CN-CP private teletype networks and by their Telex service. There are more than 13,000 subscribers on the Telex network, using dial-and-type service on a toll basis. Telex reaches far beyond the Canadian borders to 170,000 subscribers throughout the world. An interesting development has been the wide use of this service by police agencies in many parts of Canada.

Data Telex, a comparatively new service, permits subscribers to transfer data from business machines to computers and from computers to business machines in a medium speed of up to 250 words per minute. An interesting development in Data Telex is a specially developed interface unit which allows an interconnection with complex computer data equipment and Telex loops.

The CN-CP "Tel-a-Dex" family of equipment is designed to ensure efficient, flexible inter-working of business machines and telecommunications facilities. These units include punched card to punched tape translators, code translators for business machine tapes using codes other than the common teleprinter code, and error detection sets that warn of any faults in transmission by comparing check characters at the transmitting and receiving ends of a circuit.

"Auto-Call", another CN-CP innovation, is an automatic policing of traffic on a party-line system. At high speeds it automatically calls up each station on the system to see if it has any data to be sent to any of the other stations. If there are any messages to be sent, the information will be directed to the proper location. This gives each station the opportunity to transmit and receive.

One of the most important contributions made by CN-CP Telecommunications is in the field of transportation. CN-CP provides more than 50,000 miles of teletype and 14,000 miles of facsimile circuits to bring fast and accurate weather information to aviation centres. Modern automatic teletype message-switching centres at Vancouver, Montreal, Toronto, Winnipeg, Edmonton and Goose Bay are giving international airports a jet-age communications service which eliminates delays that were unimportant when aircraft service was prop-driven.

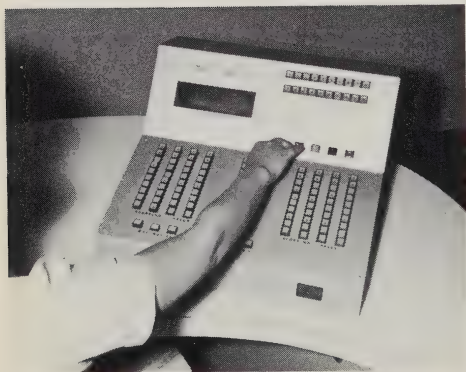
CN-CP are also involved in communications for Canada's railways with their 40,000 miles of track. Originally children of the parent railways, CNT and CPT have grown into corporate giants in their own right and with their own identities.

CN-CP Telecommunications contribute an essential part of the NORAD defence system by providing some of the circuits and equipment to link the network together. By telephone, teletype and radio, over landline, microwave



Broadband Exchange Service, an automatic switching system of the most advanced design, has moved Canada into an era of very rapid communications. The RCMP was the first organization to be tied into this supersonic network, using it for transmission of fingerprints, photographs and documents.

The CNT microwave station on Mount Dave on the Yukon-Alaska border. There are now three major radio relay systems operating in the Yukon and Northwest Territories which, in conjunction with landline facilities, provide these areas with many types of modern communication.



Many specialized services are provided by the CN-CP systems. Auctioneers and buyers no longer need be at the same place during auctions. A Tele-Bid system tells the buyer the asking price and he is then able to follow and bid on transactions.

and "scatter" systems, information flows constantly from detection sites to control centres. Within seconds, interceptor pilots and missile crews can be alerted.

On its own, CNT is very active in the field of public telephone service in various Newfoundland communities, in the Northwest Territories and the Yukon Territory. In all, there are more than 27,640 subscribers to the CNT telephone system. Of the more than 100 Newfoundland communities and settlements served by CNT, the largest exchange is at Gander with some 1,860 subscribers. The CNT exchange at Whitehorse, Y.T., currently furnishes service to some 3,400 telephone subscribers. The most northerly CNT telephone exchange providing both local and long distance service is well north of the Arctic Circle at Cambridge Bay in the Northwest Territories.

CNT microwave has brought a new era into Canada's northland. Three major radio relay systems now exist across the Territories. Largest of these is the Canada-Alaska system completed in 1961 by CNT at a cost of \$25,000,000. This network reaches from Grande Prairie, Alberta, through British Columbia to Mount Dave on the Yukon-Alaska border. In conjunction with CNT land-line facilities, microwave has brought modern telecommunication services to such centres as Whitehorse, Dawson City, Yellowknife, Hay River and Fort Providence. In 1966, CNT completed a 942-mile pole line along the Mackenzie River from Hay River to Inuvik on the Arctic coast at a cost of \$2,500,000. It meant that Arctic communities along the Mackenzie River Delta could communicate instantly over long distance with the rest of the world. The pole line, which took three years to build, consists of 1,900 miles of cable and 55,000 locally cut poles. It now carries CNT services such as telephone, telegraph, telex, teletype and CBC radio programs from Edmonton.

In Newfoundland, CNT has added to their microwave network with the recent completion of the Corner Brook to St. Anthony link — a distance of 200 miles along the Great Northern Peninsula. A second microwave link from Gander south to St. Alban's is now being planned. St. Alban's is in the Baie d'Espoir area and the site of Newfoundland's major power development which is now under construction.

CNT System Headquarters, Toronto, is the site of "Data Central" which is basically a computer-operated switching system that is capable of doing almost any kind of data processing job. Data Central now handles and transmits the reservations systems for Air Canada, Canadian Pacific Airlines, and the Canadian National Railways. The CNR was the first railway in North America to make reservations by computer. CNT Data Central also handles Air Canada's "Notice to Airmen" (NOTAM) project where particular flight plans, runway conditions and navigational aids are stored in the computers. This information is given out to pilots when a special code is dialed on teletype machines.

Early in 1968 a third-generation computer replaced the one then serving Data Central. The new computer, in addition to providing CNT's existing services, performs major "store and forward" message switching functions for the Meteorological Branch of the Department of Transport. Once the computer finds a weather report at any one of the 171 weather stations across Canada, it tells the station equipment to send the report and then determines where and at what time the information is to be sent. Canada's largest broker-

age houses also began using Data Central in early 1968 to collect and transmit information to their stations all across the country.

The latest of innovations is satellite communications. In June 1967, CNT, CPT and the Trans-Canada Telephone System grouped together to propose to the Federal Government the immediate construction of a Canadian-owned multi-purpose communications satellite system to operate by 1970. This means for CNT not only full participation in the all-Canadian satellite program, but the extension of television services as quickly as possible to northern Canada.

Overseas Telecommunication

The Canadian Overseas Telecommunication Corporation was established in 1950 to maintain and operate external telecommunication services to conduct public communications by cable, radiotelegraph and radiotelephone and any other means of telecommunication between Canada and overseas points; to make use of all developments in cable and radio transmission and reception for external telecommunication services; and to conduct research with the object of improving and co-ordinating such telecommunication services with those of other nations. By 1967 the following services had been established: direct telegraph, telephone and telex communications between Canada and Argentina, Australia, Barbados, Bermuda, Brazil, Britain, Denmark, Finland, France, Germany, Iceland, Italy, Jamaica, Japan, the Netherlands, New Zealand, Norway, Sweden and Switzerland. Direct telegraph and telex services are operated with Belgium and Peru, direct telegraph service with the Soviet Union and direct telephone and telegraph services with St. Pierre and Miquelon.

The first transatlantic telephone cable, a joint project with the British Post Office, the American Telephone and Telegraph Company, the Eastern Telephone and Telegraph Company and the Corporation, was brought into service in 1956. Apart from normal use of its systems for public telephone and telegraph message traffic, capacity is available for private leased circuits. International telex service was introduced to Canada the same year and service with 133 countries is available.

Since 1961 the following cables have been brought into service: the Canada-Britain 80-circuit telephone cable (CANTAT); the Canada-Greenland-Iceland 24-circuit cable (ICECAN); primarily intended to meet the North Atlantic communication needs of international civil aviation, and its connecting counterpart between Iceland and Scotland (SCOTICE); the Commonwealth Trans-Pacific 80-circuit cable (a four-party enterprise — Canada-Britain-Australia-New Zealand) (COMPAC) — part of the round-the-world Commonwealth telephone cable system — and the South East Asia Commonwealth 80-circuit cable (a six-party enterprise) between Australia-New Guinea-North Borneo-Singapore-West Malaysia and Hong Kong (SEACOM), connecting with COMPAC to form a further link; the use of a number of circuits for Canadian purposes in telephone cable systems connecting Bermuda and the United States and Jamaica and the United States.

The Corporation also operates direct circuits via satellite with Britain, France, Italy, Germany, Switzerland and the Netherlands. The earth station constructed for the Department of Transport at Mill Village, N.S., for re-

search and experimentation has been brought into service for commercial use and, pending the introduction of suitable multiple-access capability in the satellites, now alternates on a schedule with the American station at Andover, Maine, in handling all North American-European traffic routed via satellite. The Corporation's own earth station for commercial purposes is under construction and when completed the present station will revert to its original purpose but will also serve as a standby for commercial operations.

Canada, represented by Canadian Overseas Telecommunication Corporation, is a member of the Interim Communications Satellite Committee (ICSC) set up by the participating nations for the development and operation of a global communications satellite system. The Corporation, under a long-term agreement, has under charter from the Department of Transport the C.C.G.S. *John Cabot*, a combined ice-breaker/cable repair ship, used mainly for repairing the cables in the western North Atlantic Ocean. The Corporation also operates a cable depot at St. John's, Newfoundland.

The Press

In 1966, 101 English-language daily newspapers with a circulation of 3,595,661 were reported in Canada. Ontario had the largest number, 47; British Columbia was second with 14. In addition, 677 weeklies, semi-weeklies, tri-weeklies, and bi-weeklies were being published, and seven weekend papers as well. Twelve French-language (or bilingual) daily newspapers and five foreign-language newspapers were published in 1966. The number of foreign-language publications of all types was estimated at 101.

The Canadian dailies with the largest circulations in 1966 were: the (Toronto) *Star* (349,250); the (Toronto) *Globe and Mail* (241,472); the (Vancouver) *Sun* (240,388); the (Toronto) *Telegram* (211,230); (Montreal) *La Presse* (203,304); the (Montreal) *Star* (188,647).



The press and composing room of the Toronto Star, the daily newspaper with the largest circulation of any in Canada.

The three main newspaper "chains" were: Thomson Newspapers Ltd. which owned 26 daily and 14 weekly newspapers; FP Publications Ltd. which owned eight daily newspapers and one weekly, and had the largest combined circulation of any newspaper group in Canada; and Southam Press Ltd. which had seven newspapers.

Net revenue derived from newspapers and periodicals in 1965 amounted to \$360,781,000 from advertising and \$122,778,000 from subscriptions and sales.

In addition to staff reporters and special writers, Canadian newspapers rely extensively on two principal news-gathering agencies — the Canadian Press, a co-operative organization owned and operated by Canada's daily newspapers, and the United Press International of Canada, a limited company affiliated with the United Press International World Service. The Canadian Press provides Canadian and world news and photographs not only to newspapers but also to radio and television stations. It has reciprocal arrangements for exchange of news with Reuters and the Associated Press. The United Press International of Canada, with headquarters in Montreal, provides Canadian and international news and pictures, as well as international coverage of Canadian events.

Postal Service

The amount of mail handled by the Canada Post Office increases year by year, requiring continuous improvement in the efficiency of its services. The daily volume of mail to be moved reached a record 12,000,000 pieces in 1966, and 25,000 full-time employees were directly involved in services which were maintained at high standard. More than 3,500,000 householders and businesses received daily door-to-door mail delivery and over 650,000 addresses were served by suburban and rural delivery. Services were provided from 520 major and 10,652 smaller post offices across the country.

Almost 56,000,000 postal money orders, worth more than \$965,000,000 were sold in the fiscal year. Deposits with the Canada Post Office Savings Bank during the year were \$3,900,000.



The new District Post Office at Edmonton, Alberta, is equipped with a highly mechanized system that handles over 20,000 bags of mail a day. The building, named for Sir Alexander Mackenzie, Canada's first trans-continental explorer, also houses other Federal Government offices.

The transportation of mail also expanded widely. Over 500 new mail transport contracts, worth \$2,250,000 were awarded by public tender. More overseas mail was carried by Canadian airlines, as pooling agreements with foreign carriers and route extensions were completed. The volume of mail carried by airlines in Canada reached almost 16,000,000 ton-miles.

As Chairman of the Finance Committee of the Universal Postal Union, the Canada Post Office played an important role in the continuing development of international postal services. Progress was made in speeding the handling and delivery of international mail. A new rate system for international surface parcel post was introduced. The change from 145 routes to four zones around the world resulted in more simple rates and better service for patrons.

Labour

Record Participation Rate

Canada's population 14 years of age and over was estimated at 13,475,000 in 1966; of this total 7,420,000 or 55.1 p.c. were in the labour force. This annual rate of labour force participation was the highest on record.

There were, on average, 5,193,000 men in the labour force, representing 77.8 p.c. of the male population of working age. Women in the labour force numbered 2,227,000, or 32.8 p.c. of the female population of working age.

The percentage of men in the labour force continues to decline but at a less rapid rate, while women, particularly married women, continue to enter the labour force in large numbers.

The Labour Force by Sex and Age, Annual Averages, 1966

Age Group	Men			Women		
	Number ¹	Distribu- tion	Partici- pation Rate ²	Number	Distribu- tion	Partici- pation Rate ²
	'000	p.c.	p.c.	'000	p.c.	p.c.
Total 14 years and over	5,193	100.0	77.8	2,227	100.0	32.8
14-19	435	8.4	38.6	343	15.4	31.4
20-24	620	11.9	87.4	399	17.9	55.6
25-44	2,346	45.2	97.6	842	37.8	34.3
45-64	1,613	31.1	91.8	598	26.9	33.9
65+	179	3.4	26.4	45	2.0	5.9

¹Excludes inmates of institutions, members of the armed services, Indians living on reserves and residents of the Yukon and Northwest Territories.

²The labour force participation rate for any group is the percentage of the total population of that group in the labour force.

Total employment in 1966 averaged 7,152,000, an increase of 290,000, or 4.2 p.c. over the preceding year. The number of men employed, 4,983,000, was 141,000 or 2.9 p.c. higher than male employment a year earlier, and the number of women employed, 2,169,000, was 149,000 or 7.4 p.c. higher. For both men and women these year-to-year increases were substantial. In 1966, three out of four employed men and more than half of all employed women were married.

Employment by Marital Status and Sex, Annual Averages, 1966

Marital Status	Men		Women	
	'000	p.c.	'000	p.c.
Total	4,983	100.0	2,169	100.0
Single	1,148	23.0	830	38.3
Married	3,743	75.1	1,140	52.6
Other	92	1.8	199	9.2

Canadians generally work full time at their jobs. Although the number of persons who usually work fewer than thirty-five hours a week has been increasing, they still constitute less than 10 p.c. of the total employed. In 1966, the proportion of part-time workers was five times as great for women as for men.

Full-Time and Part-Time Employment, Annual Averages, 1966

Employment	Both Sexes		Men		Women	
	'000	p.c.	'000	p.c.	'000	p.c.
Total employed	7,152	100.0	4,983	100.0	2,169	100.0
35 hrs. or more per week	6,475	90.5	4,772	95.8	1,703	78.5
Less than 35 hrs. per week	678	9.5	212	4.3	466	21.5

For two decades or more, employment in agriculture has been decreasing steadily. In 1946, one out of every four workers was employed in agriculture but by 1966 the proportion had shrunk to less than one in ten. In 1966, the Prairie region accounted for almost half the total employed in agriculture while the Atlantic region and British Columbia together accounted for a little more than 10 p.c. Ontario and Quebec together accounted for two thirds of total employment in non-agricultural industries.

Employment by Region, Annual Averages, 1966

Region	Agriculture		Non-agriculture	
	'000	p.c.	'000	p.c.
Canada	544	100.0	6,609	100.0
Atlantic	32	5.9	554	8.4
Quebec	106	19.5	1,910	28.9
Ontario	140	25.7	2,510	38.0
Prairies	240	44.1	982	14.9
British Columbia	25	4.6	652	9.9

The proportion of persons employed in industries producing goods has been gradually declining. In 1966, the number of persons employed in these industries represented 42 p.c. of total employment compared with 60 p.c. twenty years earlier. Associated with this decline was the drop in agricultural employment, the slow rate of growth in the other primary industries and the rapid rise in job opportunities in the service industry, particularly for women. Manufacturing, service and trade accounted for 63.6 p.c. of total employment.

Industries employing the most men in 1966 were: manufacturing (1,361,000); trade (793,000); and community, business and personal service (643,000). Those employing the most women were: community, business and personal service (979,000); trade (387,000); and manufacturing (383,000).

Employment by Industry, Annual Averages, 1966

Industry	Number	p.c.
	'000	
All industries	7,152	100.0
Goods-producing industries	3,010	42.1
Agriculture	544	7.6
Other primary industries	223	3.1
Manufacturing	1,744	24.4
Construction	499	7.0
Service-producing industries	4,143	57.9
Transportation and other utilities	620	8.7
Trade	1,180	16.5
Finance	302	4.2
Community, business and personal service	1,622	22.7
Public administration	419	5.9

Craftsmen, production process and related workers make up the largest single group. In 1966, they numbered 1,864,000, more than a quarter of total employment. More than two out of every five persons were employed in the so-called white collar occupations, which include managerial, professional and technical, clerical and sales.

Employment by Occupation, Annual Averages, 1966

Occupation	Number	p.c.
	'000	
All occupations	7,152	100.0
Managerial	669	9.4
Professional and technical	876	12.2
Clerical	1,007	14.1
Sales	480	6.7
Service and recreation	813	11.4
Transportation and communication	403	5.6
Farmers and farm workers	552	7.7
Loggers and related workers	53	0.7
Fishermen, trappers and hunters	27	0.4
Miners, quarrymen	63	0.9
Craftsmen, production process and related workers	1,864	26.1
Labourers and unskilled workers (not agriculture, fishing, logging or mining)	345	4.8

The number of unemployed persons averaged 267,000 in 1966, or 3.6 p.c. of the labour force. Both the number unemployed and the unemployment rate were the lowest of any year in the past decade. The unemployment rate was unchanged from a year earlier in Ontario but was somewhat higher in British Columbia. For all regions, however, the unemployment rate in 1966 was lower than the average of the previous ten years.

Unemployment by Region, Annual Averages, 1966

Region	Number	p.c. of Labour Force
	'000	
Canada	267	3.6
Atlantic	40	6.4
Quebec	100	4.7
Ontario	69	2.5
Prairies	26	2.1
British Columbia	32	4.5



The Federal Government takes financial responsibility for the training or retraining of adults who are or who should be in the labour force. The program provides for the payment of allowances to those who have responsibilities that would otherwise prevent them from taking advantage of the training courses.

Manpower Programs

A new approach to meet continuing demands for new and improved skills has been taken by the Canada Manpower Division. The key figure in the new manpower programs is the trained counsellor on the staff of the Canada Manpower Centre whose goal is to help the workers who seek his advice to train for and find effective employment. This may mean that the worker will be referred to training to learn new skills or to upgrade existing skills. He can take advantage of training allowances provided by the Occupational Training of Adults program which came into effect on Apr. 1, 1967.

The Manpower Mobility Program came into effect on that same date. It provides assistance to workers who might be better employed in another part of the country or in another type of work. The manpower counsellor keeps abreast of labour conditions throughout Canada so that he can suggest a move to a new location or to a new job. Rehabilitation services are available to physically or socially handicapped workers through the Canada Manpower Centre. Rehabilitation and training programs are frequently co-ordinated.

The manpower counsellor provides special services to immigrants. He not only assists the head of the family to find suitable employment but also helps the family to adjust to its new environment. There are executive and professional personnel services available at Canada Manpower Centres. Small businesses and large corporations both take advantage of business management courses prepared by the Canada Manpower Division.

Hours and Earnings

Comparison is here made of average hours worked by hourly rated wage-earners and of their hourly earnings over the period 1961 to 1966. As shown in the following table, average weekly hours worked increased during that period in most industries. Although part of the increase was accounted for by the fact that 1961 was a low year in the business cycle, the changes generally resulted from varying amounts of overtime and short-time worked.

Percentage increases in average hourly earnings were approximately the same in most industries, although construction recorded an increase of .35.7 p.c., somewhat higher than the advances in the other industries. The manufacturing group, which increased 23.0 p.c. for Canada as a whole, showed provincial increases ranging from 13.0 p.c. in Newfoundland to 25.1 p.c. in British Columbia. Average hourly earnings were more than 6 p.c. higher in 1966 than in 1965.

Average Weekly Hours and Average Hourly Earnings of Hourly-Rated Wage-Earners in Specified Industries and Provinces, 1961, 1965 and 1966

NOTE: Statistics are based on returns from employers having 20 or more employees in any month of the year.

Industry and Province	Average Weekly Hours			Average Hourly Earnings			Changes in Average Weekly Hours in 1966 from		Changes in Average Hourly Earnings in 1966 from	
	1961	1965 ¹	1966 ¹	1961	1965 ¹	1966 ¹	1961	1965	1961	1965
	No.	No.	No.	\$	\$	\$	p.c.	p.c.	p.c.	p.c.
Industry										
Mining, including milling	41.8	42.5	42.3	2.13	2.43	2.61	1.2	-0.5	22.5	7.4
Manufacturing.....	40.6	41.0	40.8	1.83	2.12	2.25	0.5	-0.5	23.0	6.1
Durable goods.....	40.9	41.7	41.3	2.00	2.31	2.43	1.0	-1.0	21.5	5.2
Non-durable goods...	40.3	40.4	40.3	1.69	1.93	2.06	—	-0.3	21.9	6.7
Construction.....	41.4	41.4	42.0	2.07	2.54	2.81	1.4	1.4	35.7	10.6
Urban transit.....	41.7	42.8	42.9	2.12	2.45	2.66	2.9	0.2	25.5	8.6
Highway and bridge maintenance.....	38.4	40.1	40.8	1.63	1.89	1.99	6.3	1.7	22.1	5.3
Laundries, cleaners and pressers.....	39.8	39.2	39.0	1.04	1.23	1.31	-2.0	-0.5	26.0	6.5
Hotels, restaurants and taverns.....	38.7	36.1	35.1	1.04	1.22	1.31	-9.3	-2.8	26.0	7.4
Province—										
Manufacturing										
Newfoundland.....	40.5	41.2	40.9	1.69	1.75	1.91	1.0	-0.7	13.0	9.1
Prince Edward Island...	2	2	2	2	2	2	2	2	2	2
Nova Scotia.....	40.3	40.7	40.6	1.58	1.77	1.85	0.7	-0.3	17.1	4.5
New Brunswick.....	40.9	41.6	41.9	1.55	1.75	1.86	2.4	0.7	20.0	6.3
Quebec.....	41.5	41.8	41.7	1.65	1.88	2.02	0.5	-0.2	22.4	7.4
Ontario.....	40.5	41.1	40.8	1.94	2.25	2.37	0.7	-0.7	22.2	5.3
Manitoba.....	39.7	40.4	40.0	1.67	1.84	1.94	0.8	-1.0	16.2	5.4
Saskatchewan.....	39.0	39.9	39.8	1.98	2.15	2.28	2.1	-0.3	15.2	6.0
Alberta.....	39.7	40.2	39.9	1.96	2.14	2.27	0.5	-0.8	15.8	6.1
British Columbia.....	37.7	38.0	37.7	2.23	2.62	2.79	—	-0.8	25.1	6.5

¹Subject to revision.

²Not available.

Unemployment Insurance

The Canadian unemployment insurance program has been in operation since 1941. Federal legislation provides for a nation-wide insurance program under which employers are required to join with their insurable employees and the Federal Government in building up a fund from which payments may be made to benefit eligible unemployed persons. The Act is administered by the Unemployment Insurance Commission which consists of three persons appointed by the Governor in Council, of whom one is appointed after consultation with employer organizations and one after consultation with employee organizations; the third is the Chief Commissioner.

Coverage is compulsory. All persons employed under a contract of service are insured unless specifically excepted. Excluded is such employment as domestic service, school teaching and those employed at other than an hourly, daily, piece or mileage rate with annual earnings exceeding \$5,460. Persons employed at an hourly, daily, piece or mileage rate are insured regardless of their earnings. On Oct. 6, 1966, the Minister of Labour announced in the House of Commons that unemployment insurance was being extended to certain farm workers, effective Apr. 1, 1967. The main exclusions are workers who are members of the employer's family. In determining earnings (and hence contributions), board, lodging or other non-pecuniary remuneration are taken into account. No contribution is required for any week in which cash wages are less than \$9.

As of Mar. 31, 1967, it was estimated that close to 80 p.c. of paid workers came under the Act. Equal contributions are required from employers and employees, the specific amount to be determined by the weekly earnings of the employee. The Federal Government adds one fifth of this total and pays administrative costs. In order to protect, in some measure, the standard of living of the wage-earner when unemployed, the weekly benefit rate is related to the weekly contribution, which varies between defined earnings classes. The contribution schedule contains 12 classes, ranging from 10 cents where weekly earnings are under \$9 to 94 cents in respect of weekly earnings of \$69 or over. Maximum weekly benefit rates are \$27 for persons claiming at the single person rate and \$36 for those with dependants. An allowable earnings clause provides automatic adjustment of weekly benefits where earnings in a week exceed 50 p.c. of the claimant's benefit rate.

The Act contains a special provision by which the usual contribution requirements are relaxed somewhat during a five and a half month period beginning the first week of December each year. During this interval, workers unable to fulfil the normal requirements for benefits may draw seasonal benefits if they have at least 15 weeks of insured employment during the fiscal year, or have not claimed benefits since the previous mid-May. During the period Dec. 1, 1966, to May 20, 1967, approximately 30 p.c. of the benefit periods established were identified as "seasonal benefit periods".

During the 12 months ended Mar. 31, 1967, a total of 1,620,000 new and renewed claims for benefits were filed at local offices. On the average, 322,000 persons were claiming benefits at the end of each month during this period. Payments amounted to \$307,016,000. For the 12 months ended Mar. 31, 1966,

there were 1,589,000 claims filed, 313,000 claimants and payments amounting to \$297,707,000.

Estimates of the Insured Population under the Unemployment Insurance Act, April 1966 to March 1967

At end of Month of—	Total	Employed	Claimants ¹
1966—April	4,465,000	4,051,100	413,900
May	4,404,000	4,186,400	217,600
June	4,500,000	4,318,700	181,300
July	4,512,000	4,316,000	196,000
August	4,577,000	4,389,800	187,200
September	4,528,000	4,363,100	164,900
October	4,521,000	4,336,700	184,300
November	4,591,000	4,324,700	266,300
December	4,633,000	4,209,600	423,400
1967—January	4,684,000	4,152,100	531,900
February	4,681,000	4,129,200	551,800
March	4,799,000	4,255,200 ²	543,800

¹Month-end claimants as reported in DBS "Statistical Report on the Operation of the Unemployment Insurance Act", Catalogue No. 73-001.

²Estimate is based on total employed paid workers, as coverage was extended to certain farm workers as of Apr. 1, 1967.

Labour Legislation

Labour legislation, enacted by the Federal Parliament for employment in certain interprovincial industries and by provincial legislatures for other employment, establishes the minimum standards of wages and working conditions and regulates the system of collective bargaining.

Minimum Standards. Minimum standards for wages, hours of work, over-time pay, annual vacations and public holidays were established under federal jurisdiction by the Canada Labour (Standards) Code which came into effect July 1, 1965. The minimum wage provided in the Act is \$1.25 an hour. For a period of adjustment which ended on Dec. 31, 1966, the Minister of Labour could defer the application of the \$1.25 rate where it could be shown that implementation of the rate would impose undue hardships on small businesses or prejudice the interests of employees.

A period was also provided for adjusting to hours of work standards. The Code sets standard hours (that is, the maximum number of hours that may be worked at regular rates of pay) of eight in a day and 40 in a week. Hours over eight and 40 may be worked up to a maximum of 48 hours in a week so long as one and one half times the regular rate is paid. To prevent serious dislocation from immediate introduction of the Code standards and in view of the fact that working conditions in some types of federal undertaking may be such as to require different hours from those prescribed, the hours provisions may be deferred or suspended for a period of not more than 18 months by an order of the Minister or, following an inquiry, for a longer period by an order of the Governor in Council. The period of adjustment is still in effect in some industries. Commissions have been appointed to inquire into the interprovincial trucking industry and eastern shipping.

Eight general holidays with pay and an annual vacation with pay of two weeks are also provided by the Code. The Code was amended in 1966 to

provide for general holiday pay for longshoremen who work for a number of employers.

In the provinces, too, new minimum standards have recently been set. Each province now establishes minimum rates of pay for both men and women, covering most employees in the province except those on farms and in private homes. The rates are \$1 an hour or over, with some exceptions, in all provinces. The principle of equal pay for equal work is set out in the legislation of nine provinces (and also in federal legislation). Two provinces, New Brunswick and British Columbia, have legislation requiring an employer to grant a 12-week period of maternity leave on the request of the employee.

The regulation of hours of work is much less uniform. Five provinces have laws of general application regulating hours of work. Government regulation of hours of work takes two different forms. The laws of Alberta, British Columbia and Ontario set a maximum number of hours per day and per week (eight hours in a day and 44 or 48 in a week) beyond which an employee must not work. The Manitoba and Saskatchewan Acts regulate hours through the requirement that an overtime rate of one and one half times the regular rate must be paid if work is continued beyond specified daily and weekly hours [in Manitoba, eight and 48 hours (men) and eight and 44 hours (women); in Saskatchewan, eight and 44 hours]. In some provinces, working hours of certain classes of employees are regulated under other statutes.

In Manitoba the 44-hour week (after which an overtime rate must be paid) was extended in 1966 to all parts of the province, whereas previously it had applied only to the more industrialized areas. In Alberta, from the beginning of 1966, hours were reduced from 48 to 44 throughout the province, the 44-hour week having been in effect in cities and larger towns previously. Hours of work have been reduced in a number of the decrees applying to particular industries under the Collective Agreement Act in Quebec.

Employees are entitled to an annual vacation with pay after a specified period of service under nine provincial laws and under the federal Code. In 1967 in Nova Scotia the one-week vacation previously required was increased to two; and in Ontario in 1966 the one-week vacation was increased to two for employees with four years or more of service. A vacation of two weeks is now required in four of the other provinces and under the federal Code. The Saskatchewan legislation further provides for a three-week vacation after five years of service with the same employer. In Alberta, British Columbia and Saskatchewan, employees are entitled to a stated number of paid general holidays in a year and rules are laid down for compensation for work performed on such days. Legislation in Manitoba also specifies an overtime rate of pay for work performed on certain holidays.

Provincial legislation setting minimum standards to be observed in places of work so as to secure the safety and health of employees is continually being revised to meet new needs. Tragic accidents to workmen employed on construction projects have led to new regulations relating to the construction industry in Ontario and Quebec and a new Construction Safety Act was passed in Nova Scotia. In British Columbia the Factories Act has been revised and extended to cover shops and offices as well as industrial plants. In the field of federal jurisdiction, the Canada Labour (Safety) Code has been

passed, to be brought into force on proclamation, to ensure safer working conditions in the federal industries.

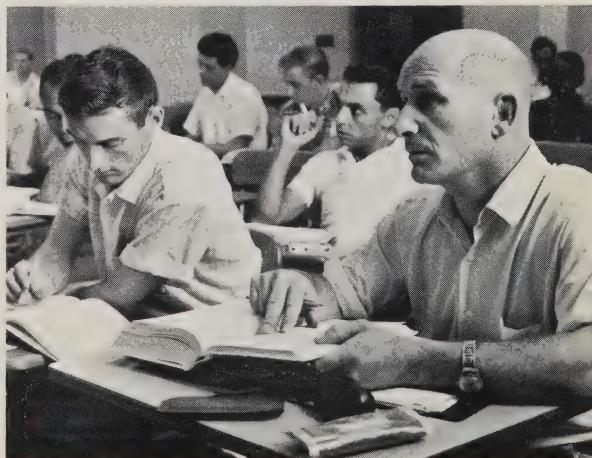
Compensation for disablement caused by a work accident or industrial disease is provided under a workmen's compensation law in each province applying to a wide range of industries and occupations. Compensation is paid at the rate of 75 p.c. of average earnings, subject to the provision that earnings above a specified maximum may not be taken into account. The ceiling on annual earnings in the various Acts ranges from \$5,000 to \$6,600. Awards for permanent disability resulting from the accident are made in the form of a life pension or a lump sum. In fatal cases, dependants are paid fixed monthly amounts, which are revised from time to time by the legislature. Compensation and medical aid are paid from an accident fund to which employers are required to contribute and which provides a system of mutual insurance. Federal laws provide compensation for certain seamen and for employees of the federal public service.

Labour Unions

Union membership in Canada as of Jan. 1, 1967, stood at 1,921,000, continuing the upward trend in evidence since 1962. This figure represented 32.3 p.c. of the non-agricultural paid workers in Canada and 26.1 p.c. of the over-all labour force. In the five-year period, union membership increased by 500,000, a figure that included the addition of 93,000 members of the Public Service Alliance of Canada which became affiliated with the Canadian Labour Congress (CLC) on Jan. 1, 1967.

Membership in unions affiliated with the CLC in 1967 totalled 1,451,000 and membership in the Confederation of National Trade Unions (CNTU) was 198,000. Of the 1,921,000 union members in 1967, two thirds were in international unions, most of which were affiliated with Canadian organizations, 576,000 were in national unions and the remainder were in directly chartered and independent local organizations.

The Labour College of Canada conducts an eight-week summer residential program in social sciences and the theory and practice of trade unions for about 100 labour leaders or potential labour leaders. The teachers are members of university faculties.

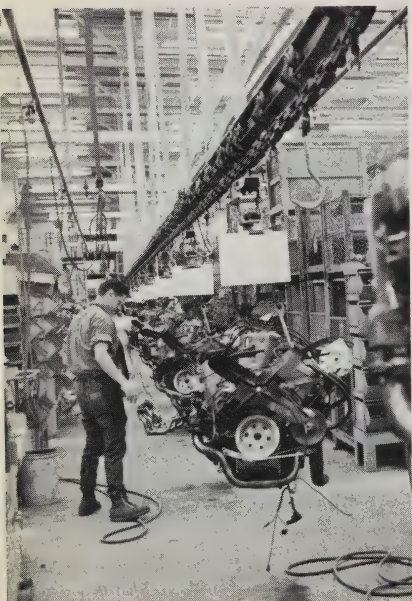


Collective Bargaining. The collective bargaining system in Canada functions under the federal Industrial Relations and Disputes Investigation Act which applies to certain industries of an interprovincial character which under the constitution are subject to regulation by Parliament, and a Labour Relations Act in each of the provinces. The principles of this legislation are basically the same, recognizing the right of workers to join trade unions, requiring employers to recognize and deal with representative trade unions and establishing certain rules to facilitate the collective bargaining process. All place a duty upon the government to endeavour to settle disputes by providing for conciliation machinery of various kinds.

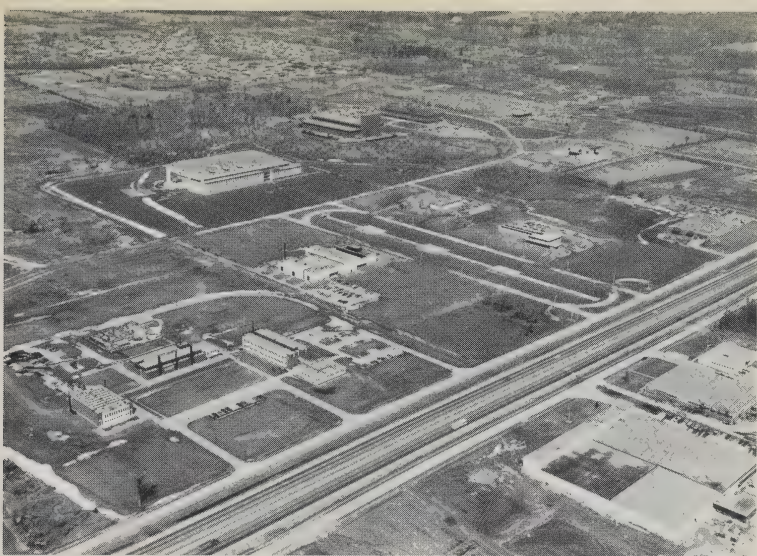
Recently a number of disputes have reached proportions that were considered to jeopardize the national interest. Parliament passed special legislation to deal with working conditions in the St. Lawrence ports after a strike had held up the operation of these ports and no permanent solution had been found to the questions at issue. A railway strike was also brought to an end by special legislation providing for further negotiation, with mediation, and for arbitration of unsettled issues.

In the provinces, special legislation dealing with disputes which, in the opinion of the government, had reached emergency proportions was introduced. The legislation in Saskatchewan concerned gas supply workers; in Newfoundland, hospital workers; and in Quebec, teachers. A number of provinces have recently amended their legislation in an effort to improve the procedure, for settling disputes.

There has been a trend in the past two years toward extending collective bargaining rights to many employees who formerly dealt with their employers individually or in a form of consultation that fell short of collective bargaining. A prime example of such extension is the federal Public Service Staff Relations Act which establishes a system of collective bargaining for all federal public servants. A Public Service Staff Relations Board has been established which will deal with questions of representation, unfair practices, and a number of other matters related to the administration of the Act. All municipalities and their employees have been brought within the scope of the Ontario Labour Relations Act and public servants in Quebec have been brought under the Quebec Labour Code.



Canadian plants manufacturing vehicles and vehicle parts together employ about 75,000 persons and pay them well over \$1,000,000,000 annually in salaries and wages.



Nine individual companies have research laboratories located at the Sheridan Park Research Community near Toronto. Included are those of the Ontario Research Foundation the services of which are available to both industries and government on a non-profit basis.

Scientific Research

There are three main sectors of research in Canada—government research, university research and research in industry. Until fairly recently, a good part of the scientific research being conducted in this country was done by or under the auspices of the Federal Government. The National Research Council had been set up in 1916 with the early duties of encouraging and stimulating research in the universities through grants and scholarships—functions continued today—but since the 1930s, NRC's own facilities for research have been gradually built up to the present large complex of laboratories engaged in applied and fundamental studies in the natural sciences, and in building, mechanical, radio, electrical and aeronautical engineering.

Important research programs have also been developed by other departments of government and by Crown corporations and agencies, such as the Defence Research Board, the Department of Energy, Mines and Resources, the Department of Agriculture, the Department of Fisheries and Forestry, the Department of National Health and Welfare, Atomic Energy of Canada Limited, Eldorado Mining and Refining Limited, and Polymer Corporation Limited.

Research councils or foundations have also been set up by several provinces, some of them—Ontario and British Columbia—self-governing institutions deriving most of their revenue from sponsored research.

Industrial research was slow to develop in Canada although certain large industries, particularly the chemical industry and the pulp and paper industry, had long histories of successful research effort. However, more recently, Canadian industry across the country is greatly extending research facilities and becoming much more aware of the advantages to be gained therefrom.

Federal Science Policy and Assistance Programs

In the federal sphere, the authority for policy on science resides in the Cabinet. In the formulation of that policy, a Cabinet Committee known as the Committee of the Privy Council on Scientific and Industrial Research receives advice from senior officials of government concerned with research. Within the past four years, a Science Secretariat has been created in the Privy Council Office with the task of assembling and analysing information on scientific matters, and a Science Council of Canada has been established to assess Canada's scientific resources and requirements and make recommendations thereon.

The Federal Government has a number of programs under way which are designed to assist industry in increasing its research and development in Canada. A new incentive program (General Incentives for Research and Development), replacing the former tax incentive program introduced in 1962,



Black Brant rockets fired from NRC's Churchill Research Range in northern Manitoba are collecting information that is contributing to the knowledge of solar-terrestrial relations. The rockets are of Canadian design and development and are now produced by private industry in Winnipeg and Montreal.

provides for grants equal to 25 p.c. of capital expenditures made in Canada on R and D by any company incorporated in this country. It also provides for grants equal to 25 p.c. of the amount by which eligible current R and D expenditures made during the year exceed the average of the eligible expenditures made by the company in the five preceding years. This program is administered by the Department of Industry, and is in addition to the normal 100-p.c. deduction of R and D expenditures for income tax purposes.

The Industrial Research Assistance Program, undertaken by the National Research Council in 1962, is designed to promote the formation of new research groups, or the expansion of existing groups in industry, and it does this by grants which pay the salaries of new or additional scientific and technical

personnel engaged on certain new R and D projects. The remaining costs are borne by the firm. In 1966, the budget amounted to \$4,500,000 and the program covered 40 new and 104 continuing projects in 90 companies.

The Defence Industrial Research Program, initiated by the Defence Board Board in 1961, supported some 100 defence research projects in industry in 1966 on an approximately 50:50 basis, with DRB contributing about \$5,000,000. The Defence Development Sharing Program, administered by the Department of Industry since 1964, shared the costs of selected development projects in industry between the Department of Defence Production and the companies involved. The government's share of this program came to about \$25,000,000 in 1966.

The Program for the Advancement of Industrial Technology, sponsored by the Department of Industry, underwrites 50 p.c. of the cost of significant development projects in industry. The program, first begun in 1965, involved a government expenditure of \$11,000,000 in 1966. If the development work on a project in this program is successful, the company pays the government back with interest; if the project is unsuccessful, repayment is waived.

Generally favourable economic conditions, the R and D assistance programs, and a recognition of the need for sophisticated and competitive industries in Canada have encouraged many industrial companies to expand their R and D facilities and programs. At the Ontario Research Community, located at Sheridan Park near Toronto, a number of companies had completed construction of their laboratories by mid-1967. These included the British American Research and Development Company, Ltd., Cominco Ltd., Dunlop Canada, Ltd., Abitibi Power and Paper Company, Ltd., International Nickel Company of Canada, Ltd., Warner-Lambert Canada, Ltd., and Atomic Energy of Canada Limited. A total of \$56,000,000 worth of buildings were completed at Sheridan Park by the end of 1967.

During 1966 and 1967, a number of other industrial companies announced the completion of, or intention to construct, new or expanded laboratories for research and development. Among these organizations were MacMillan Bloedel, Ltd., Vancouver, B.C.; Chemcell, Ltd., Drummondville, Que.; Quebec Iron and Titanium Corporation, Sorel, Que.; Arco, Ltd., Calgary, Alta.; Sherritt Gordon Mines, Ltd., Fort Saskatchewan, Alta.; Imperial Oil Company, Ltd., Sarnia, Ont.; Nopco Chemical Canada, Ltd., Hamilton, Ont.; and Hydro Québec, which announced its intention to build a \$10,000,000 laboratory for energy research and development.

With growing internal and external competition, a broad spectrum of Canadian industry has become involved in research and development. However, about 55 p.c. of the effort is concentrated in those industries producing electrical products, transportation equipment, and chemicals and chemical products. An additional 17 p.c. of the R and D expenditures by industry is concentrated in those producing paper and allied products, primary metals, petroleum and coal products.

Research and Development Expenditures

R and D expenditures continue to expand both in absolute terms and relative to the gross national product (GNP). In the fiscal year ended Mar. 31, 1966, the gross expenditure by all sectors was \$590,000,000, up from \$445,000,000 in the year ended Mar. 31, 1964, and rose from 1.0 p.c. of the GNP to 1.1 p.c. in the same comparison. The latter figure may be compared with 3.2 p.c. of the GNP in the United States in 1966 and 2.0 p.c. in France. The Federal Government provided 59 p.c. of the funds in the 1965-66 fiscal year and spent 40 p.c. of the funds in government establishments; the universities provided 9 p.c. of the funds and spent 15 p.c.; and industry and other groups provided 32 p.c. and spent 45 p.c.

As world trade becomes more complex and technologically sophisticated, it is necessary for Canada to stay at the forefront of major technological changes. An increasing research and development effort, particularly related to the economy, will help to ensure a continuing high standard of living for Canadians in a very competitive world.

University Research

Over the past five years, graduate enrolment in the physical and life sciences and engineering has increased at an average rate of about 20 p.c. a year. In the university year 1966-67, enrolment was slightly over 10,000. This rapid growth of graduate programs in the science and engineering faculties has required the Federal Government to increase its support of research in the universities. Support has grown by a factor slightly larger than two between 1962-63 and 1965-66 to about \$41,000,000 in the latter year. Of this amount, about 52 p.c. came from NRC grants, an additional 25 p.c. from the Medical Research Council, and the remainder from other government departments and agencies. Further support for research in the universities comes from provincial governments, corporations and foundations, and the Government of the United States. The money from all sources generally goes to individual researchers in the form of grants.

These increases in graduate enrolments and in research expenditures have also resulted in the need for additional research facilities in the universities. A number of facilities completed or initiated during 1966 and 1967 are mentioned below.

In the field of nuclear physics, the new 150-MeV electron linear accelerator came into operation in 1966 at the Accelerator Centre at the University of Saskatchewan. At the University of Toronto, a 35-MeV electron linear accelerator with a higher current than that of the 150-MeV came into operation in 1967. A 6-MeV Tandem and a 4-MeV Dynamitron were completed in 1967 at the University of Montreal. Researchers at the University of British Columbia, University of Victoria and Simon Fraser University are doing a design study on a 500-MeV proton accelerator for the production of mesons, called TRIUMF (Tri-University Meson Facility). If constructed, it will be completed by 1972-73 at a cost of \$25,000,000.

Plans for a National Institute of Astronomy on the campus of the University of British Columbia were announced in 1966. Also at U.B.C., a new metallurgy building was completed as part of a six-building applied science complex.

At the University of Alberta (Edmonton), the first two of three phases were completed by 1967 in the construction of a large biological sciences complex housing five departments — zoology, botany, genetics, psychology and microbiology. The entire complex is scheduled for completion in 1969 and will cost from \$20,000,000 to \$25,000,000.

Students at the Institute for Aerospace Studies, University of Toronto, conduct satellite tests in a plasma tunnel, which is a low-pressure device for producing ionized gas as it occurs in the upper atmosphere.



A \$3,400,000 building was completed in 1967 at the University of Manitoba to meet the needs of the growing engineering faculty and to provide extended research facilities. Additions costing \$2,000,000 were made in 1966 to the physics and chemistry buildings.

At the University of Western Ontario, a new low-speed ground boundary layer wind-tunnel was unveiled in 1966 for the study of problems that cannot be treated properly in conventional aeronautical low-speed wind-tunnels. Construction of a \$1,700,000 biology building at the University of Windsor was completed in 1966.

McGill is establishing an Institute of Mineral Industry Research — the first of its kind in Canada — under its department of mining engineering and applied geophysics. The first building of a new complex was completed in 1967

near the Geophysics Laboratory at Mont St. Hilaire. The complex will eventually house groups doing research in geodynamics, geophysics, mineral dressing, mining research and mining engineering.

A \$3,000,000 extension has been added to the Sir Edmund Head Hall engineering complex at the University of New Brunswick. Memorial University completed the construction of its new Marine Sciences Research Laboratory at Logy Bay in 1967 at a cost of \$1,500,000. Resident and visiting scientists will study physical, chemical, biological and geological aspects of marine sciences, while the university's psychology department investigates the behaviour and learning processes of marine organisms.

Provincial Research Councils

Provincial Research Councils are located in seven of the provinces—British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, Nova Scotia and New Brunswick. All are currently engaged in, or have plans to engage in, research and development.

The British Columbia Research Council is moving into new quarters on the University of British Columbia endowment lands. Construction is scheduled for completion by 1968. These new laboratories are seen as the centre of an industrial research park.

The New Brunswick Research and Productivity Council, created in 1962, completed construction in 1967 of a 40,000-sq. ft. addition of laboratory and library space. This addition was financed by the Atlantic Development Board.

The Nova Scotia Research Foundation intends to complete construction in 1968 on a \$1,200,000 building in South Dartmouth. Research will be carried out in the fields of applied biology, chemistry, physics, geophysics and photogrammetry. There will also be studies in operational research.

Construction was completed in 1967 on the new Ontario Research Foundation laboratory at Sheridan Park. The \$5,500,000 building is the focal point for the research activities in the park, and its specialized laboratory equipment is available to all members of the research community.

Research Activities of the Federal Government

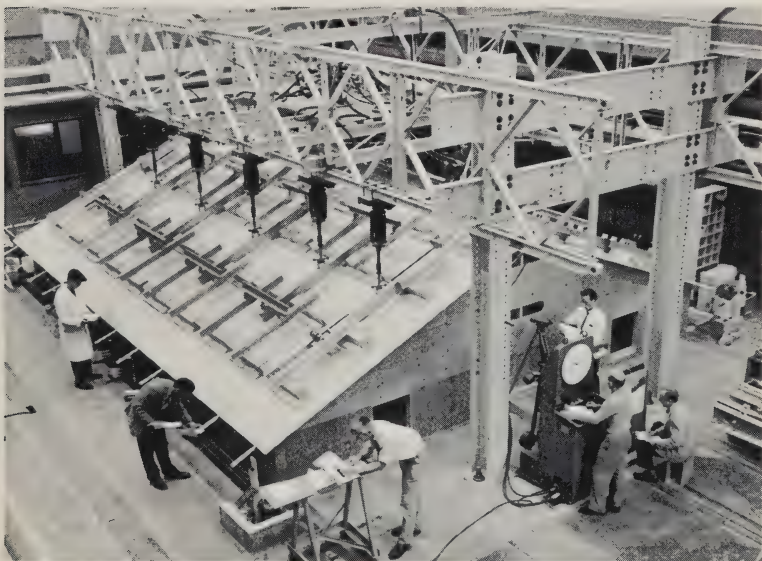
Gross expenditures by the Federal Government on research and development in government establishments rose an average of 7.6 p.c. each year between 1958-59 and 1965-66. During the latter fiscal year the expenditure was \$233,000,000. Of this 21 p.c. was spent by Atomic Energy of Canada Limited, 20 p.c. by the Department of National Defence, 16.5 p.c. by the Department of Agriculture, 16.0 p.c. by the National Research Council on its own research activities, and 9.5 p.c. by the Department of Energy, Mines and Resources. The remaining activity was mostly divided among the Department of Forestry, the Department of Fisheries, the Department of Transport, the Department of National Health and Welfare and the Department of Indian Affairs and Northern Development. Altogether, some 25 government departments and agencies are involved in scientific activities.

The National Research Council celebrated its fiftieth anniversary during the fiscal year 1966-67. Its broad-based research and development activities



Arctic char from northern waters under study by scientists of the Fisheries Research Board. The Board conducts a biological program designed to add to the knowledge of Canada's vast marine resources.

NRC's Building Research Division conducts tests on beams, slabs, columns, roofs and walls to provide safe and efficient design specifications for Canada's National Building Code.



encompass space, physics, chemistry, biology, transportation, weather, building, food and instrument development.

During 1966, the Department of Agriculture announced the discovery of a new antibiotic called Myxin which they hope may find wide application.

Atomic Energy of Canada Limited completed the construction in 1967 of a 10-MeV Tandem accelerator for research in nuclear physics at their Chalk River Nuclear Laboratories. The Defence Research Board continued its direction of the Alouette-ISIS (International Satellites for Ionospheric Studies) space satellite program. Two satellites carrying scientific experiments, the Alouette I and II, have been launched in co-operation with the United States National Aeronautics and Space Administration. The launch of ISIS-A is scheduled for late 1968 or early 1969.

The Department of Energy, Mines and Resources is planning the construction of laboratories for the Canadian Centre for Inland Water at Burlington, Ont., to be completed in the early 1970s. The Department is also involved in an expanded surface water and ground water survey, a water use inventory and various activities connected with the International Hydrological Decade.

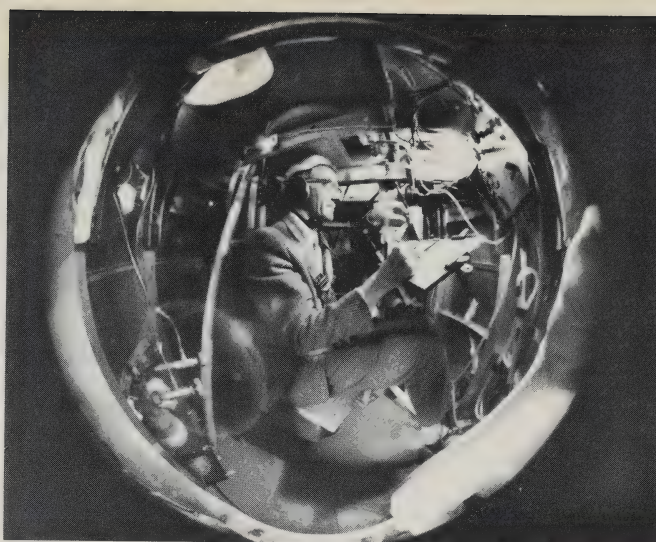
The NRC and Patents

A liquid applied to windshields keeps rain from blurring the vision of motorists. A perforated breakwater may revolutionize the construction of sea-walls. A helium-neon laser makes it possible to measure distance with an accuracy better than one part per million. A unique radio antenna was made standard equipment in the Gemini and Apollo space shots. These are only a few of the inventions by Canadians whose ideas have been protected by the Canadian Patent and Copyright Office at Ottawa which handles all applications for patents in Canada. During the fiscal year, 1966-67, 24,432 patents were granted — 21,459 to companies, 2,924 to individuals, and 49 to companies and individuals jointly. Of the total, 31 patents were issued to women inventors;



The federal Soil Research Institute, in co-operation with provincial agencies and universities, is deeply active in the study of the characteristics, genesis and classification of the nation's soils and their fertility and management problems.

n NRC scientist studying the compression of a Canadian-designed and built turbine of a type which could eventually replace the internal combustion engine. The approach to the problem and the facilities in use have stirred interest around the world.



24,325 to men only; and 76 to men and women jointly. Of the patents granted, 1,827 went to Canadian citizens or companies, and 22,605 to non-residents of Canada. Internationally, Canada received 5 p.c. of patents granted; Britain, 7.2 p.c. (1,769); other Commonwealth countries, 0.4 p.c. (97); the United States, 68.0 p.c. (16,659); and others, 19.4 p.c. (4,685). Most Canadian inventors lived in Ontario, Quebec and British Columbia. Although the number of patents granted to Canadians by the Patent Office appears relatively limited, many Canadian patents are first filed in other countries, particularly in the United States.

The subject matter of invention and the percentage of the total number of patents issued during the year 1966-67 are shown in the following table.

Subject	Per Cent of Total	Subject	Per Cent of Total
Human Necessities—		Performing Operations—	
Agriculture.....	2.22	Separating and mixing.....	4.48
Foodstuffs.....	0.85	Shaping.....	10.02
Apparel.....	2.76	Printing.....	1.16
Medicine and hygiene.....	2.15	Transporting.....	8.98
Chemistry and Metallurgy—		Mechanics, Lighting and Heating—	
Chemistry.....	29.01	Engines.....	4.81
Metallurgy.....	1.16	Lighting and heating.....	2.53
Textiles and Paper—		Physics—	
Textiles.....	6.61	Instruments.....	9.15
Paper.....	0.54	Nucleonics.....	0.24
Fixed Constructions—		Electricity.....	9.96
Building.....	2.35		
Mining.....	1.02		
			100.00

Canadian patent legislation is almost as old as Canada, originating in the Acts of 1869 and 1872 with several amendments. In 1935 the Patent Act was completely revised, although the principles, based on the first inventor system,

and similar to those of the United States, remained the same. The Patent Act of 1935 reduced the term of a patent from 18 to 17 years following the grant of the patent.

Such institutions as the National Research Council and those located in the Sheridan Park Research Community indicate that the lone inventor of former years has been generally superseded by co-operative investigators. Many Canadian companies now have their own research departments where skilled inventors seek to improve on the methods and processes in use. However, since many companies in Canada are either branches or subsidiaries of United States industries, much research is done by parent companies in the United States and then patented in Canada.

The Act provides that an invention is patentable if it has not been previously known or used by others in Canada and has not been in public use or on sale in Canada, or patented or described in a printed publication in Canada or in any other country for more than two years before the publication.

A substantial proportion of Canadian inventions come directly from publicly financed and institutionally performed research, a number of them stemming from the work performed in National Research Council laboratories. In 1947, a charter was granted in the name of Canadian Patents and Development Limited to administer inventions which had accumulated largely from National Research Council research during World War II. In 1948 the Government Companies Act became applicable to the Company. In the same year, it accepted the handling of inventions arising from government departments other than NRC and made provision for entering into agreements with universities (at their request) to administer whatever material appeared patentable.

In 1951 the Company concluded its first agreement for handling the inventions of a provincial research organization; the next year it entered into a reciprocal agreement with the National Research Development Corporation of Britain to promote each other's cases and, since that date, has made similar arrangements with government organizations in Australia, India and South Africa. The Company now has agreements with 17 Canadian universities and colleges and with five provincial research organizations.

As more departments and agencies of the Federal Government approached the Company to use its services, the Public Servants Inventions Act, which applies to all inventions made by public servants after June 1, 1954, was passed by Parliament. Under the terms of this Act, Canadian Patents and Development Limited administers inventions transferred to it by a Minister of the Crown and thus has become the Canadian Government's principal agency for obtaining patents on inventions arising from publicly financed research.

The regulations for the Public Servants Inventions Act provide for the following payment to inventors: 15 p.c. of the first \$10,000 of gross revenue, decreasing by 2 p.c. for every additional \$10,000 until \$60,000 has been received, and then by 1 p.c. to \$80,000, after which the payment is fixed at 2 p.c. of gross revenue.

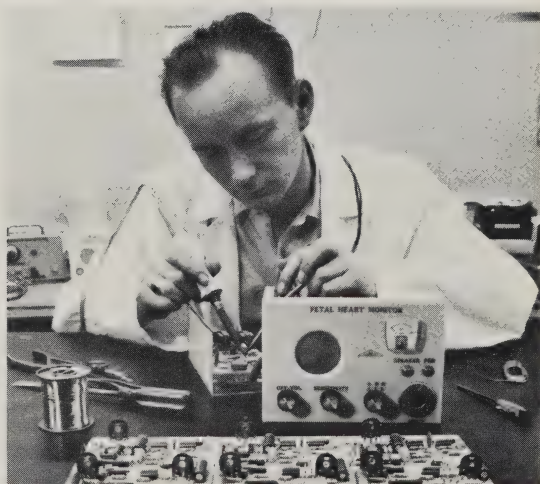
Inventions received by Canadian Patents and Development Limited differ widely in the size and value of their potential markets and in the breadth of their possible patent coverage. Very few are consumer products. Many are highly specialized scientific devices. Some are processes having a wide range of possible applications. As patenting costs are rising, inventions have to be carefully assessed. In Canada, filing fees for applications for patents were raised from \$30 to \$40 in 1966; granting fees from \$30 to \$70, plus a printing fee of \$20. There may also be substantial costs for preparing the patent.

In the 19 years of its existence, the Company has received 2,073 proposals for patents. Of these, 158 suggestions were made in 1966-67, an increase of 20 p.c. over the previous year's submissions. Forty-nine originated with the National Research Council, 37 with Atomic Energy of Canada Limited, 34 in other government departments and agencies, 31 in universities and colleges, and seven in provincial research organizations. As of Mar. 31, 1967, CPDL had directly, or through agent firms, acquired patents on 594 different inventions, and patents were pending on 309 others.

It is the policy of Canadian Patents and Development Limited to offer all its patents to Canadian firms first. However, for many of the specialized scientific items there are occasionally no Canadian firms in the field to take advantage of the discoveries, or there may be no Canadian companies in a position to take the development risks. The same situation often pertains to inventions of individual promoters — thus furnishing opportunities for foreign firms to use important discoveries registered with the Canadian Patent and Copyright Office.

Many Canadian inventions have found notable success in the business world. A Position and Homing Indicator which automatically keeps track of an aircraft, giving the pilot a continuous bearing and distance to his own base or to alternative targets is used by some 13 national air forces. The large-cup ear defender with fluid-filled cushion which protects the ear when work is noisy is familiar. The Nitraprills process for pelletizing ammonium nitrate was licensed

A fetal heart monitor being assembled in a Winnipeg applied research plant, one of the many complex electronic medical devices recently developed.



to 18 companies. The licence on a vascular-suturing surgical instrument for joining severed blood vessels, enabling a surgeon to make blood-tight joints very quickly even in tiny vessels has now been taken over by a new licensee. Myxin, the antibiotic discovery of a group of Canadian government scientists, has recently been licensed to a Canadian pharmaceutical laboratory for further development and, if this is successful, for production and sale.

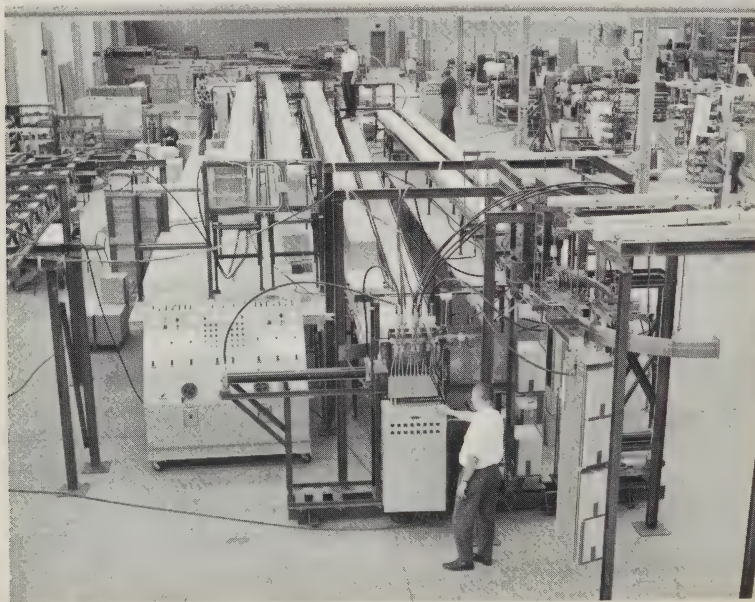
The public is kept well informed of the work of Canadian inventors. The Canadian Patent Office Record weekly gives a brief digest of each patent granted. In addition, foreign as well as Canadian Patents may be consulted at the library of the Patent Office which has records of British patents from 1617, and of American patents from 1836, as well as many records from other countries. The Patents Handbook, listing the inventions available for licensing by Canadian Patents and Development Limited, is kept up to date by two revisions each year, and is available from the Company.

Medical Research

Within the past few years the volume of medical research carried on in Canada has expanded considerably. Although it is conducted principally in the medical faculties of universities, some research is also carried out in government and industrial laboratories.

Most members of the non-clinical departments of the medical faculties devote about half their time to research and to training graduate students and

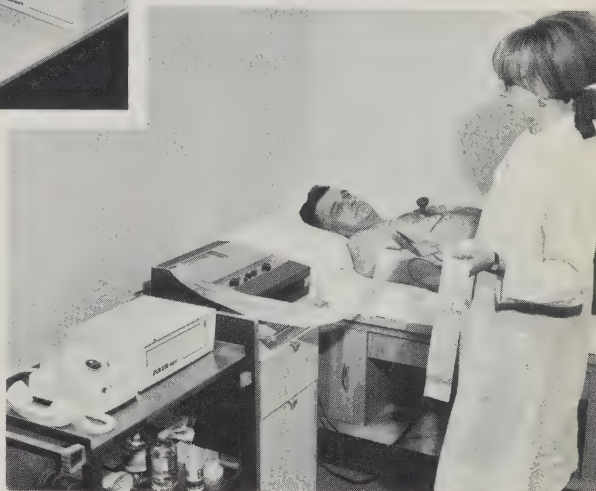
A large installation for gamma-ray sterilization of medical supplies, built in the Commercial Products plant of Atomic Energy of Canada Limited, being tested before shipment to New Zealand.





Medical services benefit by advances in telecommunications technology, especially where speed and specialist attention is imperative.

An electrocardiogram, transmitted by means of a data set over the telephone network, is scanned at a distant point, thus providing immediate specialist service to remote areas or smaller centres where such service is otherwise not readily or quickly available.



research fellows in research techniques — the latter to provide qualified staff for the expanding medical faculties. In some universities considerable research is also carried out in clinical departments.

Outside the medical faculties, there are few institutes devoted to medical research. The laboratories of the Department of National Health and Welfare have extensive research laboratories, which carry out research necessary to determine how best to fulfil their legislated role of protecting the Canadian population against environmental hazards, in the atmosphere or in food, and of assuring the purity of drugs which are available for the treatment of illnesses. The Defence Research Board and the Armed Forces also support medical research establishments. Research in industrial pharmaceutical laboratories is directed principally to the discovery of new drugs and to the elaboration of methods for the detection of the toxic effects of new compounds before submitting them for approval for the treatment of illness. Significant achievements in both basic and applied medical research have been made by workers in both government and industrial laboratories during the past years.

The growth in medical research in universities in the past few years has been stimulated by the realization that if Canada is to provide the number of

physicians needed for the growing population it is necessary to attract capable teaching staff to the medical faculties of Canadian universities, and these can be attracted only by adequate research support. It is also recognized that only research can provide the knowledge which will make possible the better understanding of disease processes and the development of better methods of diagnosis, treatment and prevention of disease.

Medical research in the universities is supported principally by such government agencies as the Medical Research Council, the Department of National Health and Welfare, and the Defence Research Board. Private foundations also contribute significantly to its support. During the fiscal year 1967-68, support of university medical research from all sources was over \$32,000,000. Of this, \$20,500,000 was provided through the Medical Research Council, about \$4,600,000 by the Department of National Health and Welfare, and some \$450,000 through the Defence Research Board.

Among the private agencies, \$2,632,750 was provided by the National Cancer Institute of Canada, \$2,000,000 by the Canadian Heart Foundation, \$483,500 by the Canadian Arthritis and Rheumatism Society, \$350,000 by the Muscular Dystrophy Association of Canada, \$155,000 by the Canadian Tuberculosis Association, and \$115,000 by the Canadian Association for Retarded Children. In addition, a number of other private agencies, as well as some provincial government organizations, contributed funds to the support of research. Besides supporting medical research projects, the National Cancer Institute also supports six Cancer Research Institutes in Canadian universities.

To encourage medical research in Canada, the Medical Research Council supports a limited number of researchers in medical schools through its scholarship and associateship programs. The Medical Research Council Scholarship is designed to provide support for the trained investigator who has shown promise of ability to initiate and carry out independent research. The award is intended to afford an opportunity to develop and demonstrate such ability unhampered by the heavy teaching duties often expected of a regular member of the university staff. The Medical Research Council Associateship is designed to encourage long-term planning and development of medical research in Canadian universities by providing funds for the salaries of individuals of outstanding ability and training who wish to make research a full-time career. The Council has a training program which provides fellowships for training in the procedures of medical research.

Recent Canadian achievements in medical research include the following: the discovery of the presence of sex chromatin in all mammalian cells, a discovery that has opened up a whole new field of cytogenetics; the discovery of a new hormone of the parathyroid gland, which is of great importance in the physiological regulation of calcium metabolism and the processes of hardening of the bones of the body; the development of techniques by which divers who have been working beneath the surface of the sea can assess at any moment the rate at which it is safe to ascend. Canadian researchers are at the forefront of many of the advancing fields of medical research and those making significant advances are in demand as lecturers throughout the world to explain the latest advances in their particular field.

Society and Culture



Health

Hospitals and other institutions, government departments concerned with health, voluntary agencies, teaching and research institutions — all have important roles in the administration of health services in Canada. Provincial governments bear the main responsibility, but the municipalities often exercise considerable authority over matters delegated to them by provincial legislation.

The Federal Government has jurisdiction over a number of health matters of a national character and provides financial and technical assistance to provincial health and hospital services, particularly through the National Health Grants Program and the nation-wide hospital insurance scheme. All levels of government are aided and supported by a network of voluntary agencies working in different health fields.

Recently the Federal Government has enacted three significant measures: the Health Resources Fund for which \$500,000,000 will be appropriated over a 15-year period to assist the provinces to expand their medical schools and other health training and research facilities; the Medical Care Act that enables federal payments toward the costs of provincial medical care plans; and the health care services provision of the Canada Assistance Plan for persons in financial need. These measures, jointly financed by federal and provincial governments, are designed to raise the standard and increase the accessibility of health services to all Canadians.

Other important measures to improve health, undertaken by all jurisdictions, include public education on smoking and health, the reduction of infant and maternal mortality, and elimination of harmful industrial and chemical wastes in the environment.

The public health agencies must continuously adapt their services to population changes. Canada's growth and mobility, especially in urban areas, have required greatly expanded health services, while its changing age and sex composition has affected both the number and kind of health services required. More difficult to assess in their impact on the structure and use of health services are complex social and economic changes and constant advances in medical technology that have altered disease patterns.

A high rate of natural increase combined with immigration brought Canada's population to over 20,000,000 persons by 1967, an increase of approximately 10 p.c. from 1961. Meanwhile, the birth rate fell to 19.4 per 1,000 in 1966, the lowest on record, while infant and maternal rates also declined. This trend has reduced the expected demand for obstetric beds and child and maternal health services, while a substantial absolute increase in the numbers of older persons, especially women, has taxed the care facilities for the aged.

Most of the increase in life expectancy in Canada is due to the improved health of the younger age groups. The three leading causes of death in 1967 mainly affected persons over 45 years of age, namely circulatory diseases, tumors, and diseases of the nervous system and sense organs, whereas accidental deaths, the fourth ranking cause, were most common among younger adults. Except for diseases of the nervous system, mortality rates are higher for males, especially because of deaths through accidents. Accidents also account for much of hospitalized illness and loss of time from work.

Foods undergoing tests for insecticide residues in the Food and Drug Laboratories of the Department of National Health and Welfare.

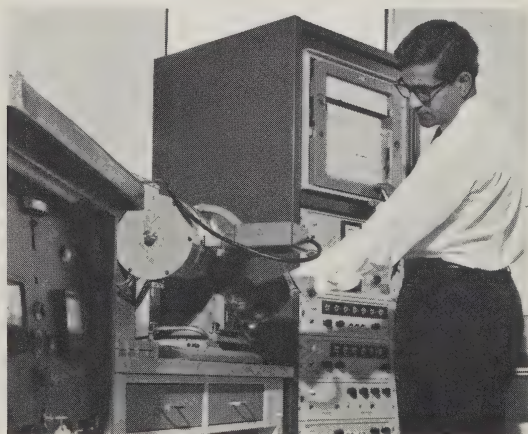


Medical Care Insurance

Canadians have traditionally paid for personal health services directly to the professionals providing the services. However, medical insurance especially to cover physicians' service is increasingly popular. At the end of 1965 about 12,007,000 Canadians, or 61.4 p.c. of the population, had such voluntary insurance protection, whether complete or partial, against the costs of physicians' services. At the same time, government involvement in financing the costs of personal health services has been increasing, and in two directions.

First, for indigent persons and families unable themselves to pay for services or to purchase insurance, most provincial governments have introduced programs that assure payment to physicians and usually to dentists, pharmacists, optometrists and others. Such programs have operated in several provinces for many years. In others, legislation has been passed recently permitting the

Environmental and air pollution studies include the analysis, by means of an X-ray spectograph, of toxic substances such as lead, selenium, cadmium, etc.



financing of a wide range of services for residents in need, the spur to expansion in these instances being the Canada Assistance Plan. This is a federal statute enacted in late 1966, which provides for fifty-fifty cost-sharing of a comprehensive range of health services (as well as the costs of welfare and income maintenance) for indigent persons and families.

Second, for the self-supporting population generally, some provincial governments have introduced programs to ensure, if necessary by underwriting part or all of the cost of premiums, that all eligible residents are or can be covered for physicians' services insurance. In Saskatchewan, population coverage is compulsory and no voluntary or private competing plan is permitted. In British Columbia and Ontario, public or quasi-public commissions administer programs available to individual applicants. Residents are free to enrol or not to enrol. In Alberta, the government establishes minimum ranges of benefits and maximum premium levels for persons wishing to enrol in existing voluntary insurance plans.

In Newfoundland, the population in Cottage Hospital Districts (that is, isolated outlying areas) is required to enrol in a salaried medical service scheme. Additionally, all children under 16 years in all parts of the province are covered under another program at no direct charge to their families for physicians' attendance and surgery in hospital.

All five of these plans use the premium mechanism of enrolment. The device used in Saskatchewan and Newfoundland to ensure that the premium burden upon families is not heavy is across-the-board subsidization of costs from general tax revenues (which actually cover about three quarters of the total cost). The device in the remaining three provinces with programs is subsidization from general tax revenues of premiums for the needy as defined by a simple test of income.

Again, as with health services for indigent persons, the spur to further expansion is recent federal legislation. The Medical Care Act of 1966, which became effective on July 1, 1968, provides for federal contributions of one half of the over-all cost of programs by participating provinces. This legislation has a built-in equalizing effect such that the low-cost provinces (that is, presumably, the less wealthy) will recover something more than one half of their costs in federal contributions, and high-cost provinces, something less than one half.

As a result of this federal legislation, most provinces are preparing, or have prepared, counterpart legislation enabling them to introduce programs in 1968 or later that will satisfy four conditions of eligibility set out in the Medical Care Act. These are that all medically necessary physicians' services be benefits with no financial barriers to ready access to physicians' services, that benefits be portable from province to province, that administration be by a non-profit public authority, and that each plan must cover all eligible residents of the province. The fourth condition is that not less than 90 p.c. of the number of eligible persons must be insured during the first two years and 95 p.c. thereafter.

In addition to the comprehensive physicians' services that must be provided by participating provinces, the Medical Care Act empowers the government to include any additional health services under terms and conditions which may be specified by the Governor in Council.

Health Resources Fund

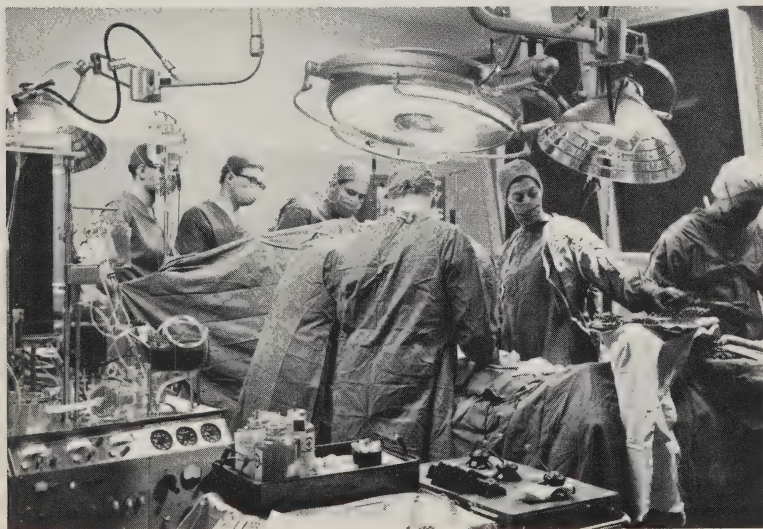
Under the Health Resources Fund Act, 1966, the Federal Government has instituted a 15-year program to foster the construction of facilities for education in the health professions and to expand health research. Payments from the fund, which amounts to \$500,000,000, may cover up to 50 p.c. of the costs of planning, constructing, renovating, acquiring, and equipping the facilities. Land and interest costs and all operating expenses are excluded.

As of Mar. 31, 1967, federal payments totalled \$4,700,000, and projects involving an outlay of nearly \$15,000,000 of federal funds had been approved. A Health Resources Advisory Committee had been formed, consisting of the Deputy Minister of National Health (Chairman) and a member from each province, to advise the Minister of National Health and Welfare on all aspects of the program and to approve provincial plans for the development of the facilities.

Hospital Insurance

The federal-provincial hospital insurance program covers over 99 p.c. of the insurable population of Canada. The system of federal grants-in-aid to the provinces to meet about 50 p.c. of the cost of specified hospital services is set out under the federal Hospital Insurance and Diagnostic Services Act of 1957. The Established Programs (Interim Arrangements) Act made provision for provinces to contract out of various federal-provincial programs, including hospital insurance. The Province of Quebec entered into an agreement with the

An operating team at work in the Royal Victoria Hospital, Montreal. The heart-lung machine on the left permits open-heart surgery to be undertaken regardless of the time required.



Federal Government under this Act, effective Jan. 1, 1965. As a result, the contributions under its hospital insurance program are made through tax abatement and not under the Hospital Insurance and Diagnostic Services Act.

To participate in the program, each province is required to make standard or public ward hospital care and other specified in-patient benefits, including laboratory and radiological diagnostic services, available to all of its residents under uniform terms and conditions. The provinces also provide for those insured optional out-patient hospital services whose pattern varies considerably from province to province.

The methods of financing and administering the provincial plans, as well as certain details concerning eligibility for benefits, rest with the provinces. Several provinces expanded the range of insured benefits during the fiscal year 1965-66. New Brunswick, Quebec and Alberta extended their insured out-patient services. Ontario added facilities for treating cancer to its list of hospitals, and British Columbia added certain facilities for long-term care. Ontario also revised the age limit for dependent status from 19 years to 21 years. Federal legislation applies only to services provided by approved active treatment, chronic, and convalescent institutions and related facilities, and specifically excludes mental hospitals, tuberculosis sanatoria and custodial care institutions. Federal payments to the provinces under the program from July 1, 1958, to Mar. 31, 1967, totalled more than \$2,558,000,000 and for the fiscal year 1966-67 alone amounted to \$397,390,000.

Community Health Services

Besides the basic preventive health services such as environmental sanitation, control of communicable diseases, and child, maternal and school health services, the local health agencies, both official and voluntary, are developing services for the disabled, including home care. Co-ordinated community programs for the mentally ill and retarded, handicapped children and the chronically ill are making available a greater range of health, educational and social services. Among the new types of health services instituted by the local health agencies are family planning clinics and health screening programs for chronic conditions and for elderly persons. More efforts are also being directed to reduce pollution of the cities and to prevent motor vehicle accidents.

Provincial health departments support these activities through grants to the city health departments, health units and voluntary agencies and by supplying technical consultant services. They also operate the mental and tuberculosis hospitals, and other direct services for cancer, alcoholism and other specific diseases, and the provincial laboratories. In other fields, including vital statistics, occupational health, health education, air and water pollution control, health research and the training of health personnel, the official provincial health agencies are chiefly responsible.

Health activities of the Federal Government, centred in the Department of National Health and Welfare, have broadened especially in the areas of food and drug control, pesticide control and the environmental health problems caused by air, water and soil pollution, and radiation hazards. The Environmental Health Centre in Ottawa carries out special studies and supplies technical advice on programs to prevent occupational diseases and atmospheric

pollution, and in the developing field of aerospace medicine. Other federal health responsibilities include the provision of comprehensive health services to Indians and Eskimos and to war veterans, and grants-in-aid to the provinces for the extension of public health services. A number of federal departments and voluntary agencies co-operate to support health research, professional and technical training of health personnel and international health programs.

Chronic Illness and Rehabilitation

Increased longevity resulting from effective measures against infant mortality and communicable disease, together with general advances in medical care and drugs, has focused professional and public attention on the control of chronic disease and long-term illness, requiring the full range of preventive, curative and rehabilitative services. The uncertain etiology and insidious onset of some of the chronic and degenerative diseases make primary prevention extremely difficult. Nevertheless, advances are being made, for example, in multiphasic screening for the detection of chronic conditions such as diabetes and glaucoma; voluntary organizations and their volunteers co-operate with public health departments or units in this screening. Preventive clinics for women and older persons too are increasing in number in Canada. Most larger general hospitals, and particularly teaching hospitals, have specialized outpatient clinics for arthritis, diabetes, cystic fibrosis, heart defects, cancer, orthopedic and neurological conditions. Extended treatment wards in general hospitals, chronic disease hospitals, nursing homes or homes for special care, domiciliary facilities for the aged and feeble, day centres, as well as some night hospitals, are available in most cities in Canada.

Voluntary organizations have been set up to combat these and other conditions through various patient services, public education and the support of research. Mobile clinics to remote areas and the trend toward regionalization are making possible distribution of improved care to Canadians in rural areas.

Prosthetic appliances and artificial limbs are available for disabled persons at federally operated centres across the country. Workshops for repairing such devices and research and training units exist in several cities.



Moreover, some 25 home care programs across Canada co-ordinate medical, nursing, physiotherapy, counselling and homemaker services, and provide drugs to patients in their own homes. Voluntary organizations also provide community bedside care in addition to the public health nursing available from official agencies.

The success of rehabilitation programs for injured workers under provincial workmen's compensation, for war veterans through the Department of Veterans Affairs, and for handicapped children under various auspices has stimulated the expansion of rehabilitation services to the disabled. The Department of National Health and Welfare through its National Health Grant Program, in effect since 1948, has promoted the development of rehabilitation services. All provincial health departments have utilized these health grants as well as provincial funds to develop rehabilitation services and personnel in hospitals and rehabilitation centres and to establish specialized clinics for a variety of disabling conditions. Since January 1966, the Department has also assumed responsibility for nation-wide prosthetic services. Initially established for veterans, it now consists of one central prosthetic establishment (at Toronto) plus 11 centres mainly in major cities throughout Canada for supplying and fitting limbs. Major research, experimentation and training in prosthetics and orthotics is carried out at three prosthetic and orthotic research and training centres in addition to the main centre, all supported under the National Health Grant Program.

In co-operation with the federal Department of Manpower and Immigration, provincial health or welfare departments also administer vocational rehabilitation programs for disabled adults who can be restored to gainful employment. Canada's Manpower Centres employ officers to place the handicapped in suitable employment. Others are assisted through a growing network of sheltered workshops mainly under voluntary auspices. Handicapped children benefit from special educational facilities available in all provinces.

Mental Illness and Mental Retardation

With the support of governments and citizens' groups, special resources within the community are being developed to help the growing number of mentally ill and mentally retarded who require continuing community care. Treatment is made more accessible with the expansion of facilities of general hospitals and community psychiatric hospitals for short-term in-patient therapy, day care, emergency, and out-patient services. Well-established White Cross Centres operated by the Canadian Mental Health Association furnish aid in social and vocational adjustment to discharged hospital patients. Its volunteers visit patients in hospitals and bring entertainment while stronger links are also being forged between the community health and social agencies and the mental hospitals. Both the mental hospitals and community agencies are developing industrial and sheltered workshops that pay for work performed and provide some job training as well as occupational therapy.

Progress continues in reducing the patient population in most mental hospitals. Many of the residential patients not requiring active treatment have been resettled in suitable boarding or foster homes. In Saskatchewan, for

example, there are at least 1,000 mental patients now in community residences who, a few years ago, would have been cared for in mental hospitals. In Ontario, more than 2,000 mental hospital patients requiring sheltered or nursing care have been placed in approved homes for special care and another 1,500 patients, most of whom are ambulatory, in approved boarding homes or other units.

The vigour of the volunteer movement to promote the welfare of the mentally retarded is evident in the rapid expansion of educational and training projects supported by the Canadian Association for Retarded Children and its provincial and local associations. Further impetus to broaden research and community services in co-operation with government and universities has been provided by the Association's centennial program to set up in each province demonstration facilities to illustrate the value of specific aspects of assessment, special education, vocational training, sheltered workshops or residential care. Additional support amounting to \$2,500,000 has been made available by the Department of National Health and Welfare for these projects during the next five years.

Senior citizens enjoy companionship and activity in organized groups sponsored by municipalities or voluntary agencies.



Social Welfare

Responsibility for social welfare is shared by all levels of government. The Federal Government administers the broad programs of social security and administers welfare services to those for whom it has a statutory responsibility — Indians, Eskimos, members of the Canadian Forces and veterans.

The provincial governments have primary responsibility for the administration of welfare services but the provision of services is often assumed by the local authorities with financial aid from the provinces. Substantial federal aid is given to the provinces in meeting the costs of public assistance and welfare services. Voluntary agencies provide a wide range of social services which complement the public services.

Old Age Security

In 1967 a pension of \$75 a month was paid by the Federal Government to all persons aged 68 or over who had lived in Canada for at least ten years immediately before their claim was approved. It is financed through a 3-p.c. sales tax, a 3-p.c. tax on net corporation income and, subject to a maximum limit of \$240 a year, a 4-p.c. tax on personal taxable income. Payment of the pension outside the country is made for six months in any case, and indefinitely for a person who has had 25 years residence since age 21. A 1965 amendment authorized the payment of the pension to persons who have had 40 years residence in Canada since age 18, enabling persons who had left Canada before reaching the qualifying age to become eligible for the pension if they had spent virtually all of their working lives in Canada. In 1968 the pension will be paid to persons aged 67 and over, in 1969 to those aged 66 and over until, from 1970, all eligible persons aged 65 and over will receive the pension. In 1968 and succeeding years the pension will be adjusted for increases in the cost of living using the Pension Index developed for the Canada Pension Plan. Recipients of old age security who are in need may receive supplementary aid under provincial general assistance programs.

The number of recipients of old age security on Mar. 31, 1967 was 1,229,561 and net payments for the 1966-67 fiscal year amounted to \$1,033,408,230.

Guaranteed Income Supplement. A program was introduced in January 1967 which guarantees a minimum level of income for persons in receipt of old age security. The monthly supplement is up to 40 p.c. of the old age security pension.

At present, the scheme guarantees an annual minimum income of \$1,260 to a single pensioner and \$2,520 to a married couple, both of whom are pensioners. Pensioners with no income other than old age security will receive a guaranteed income supplement of \$30 a month. This, combined with the \$75 for old age security, provides a total monthly payment of \$105. For the purposes of the program, income is determined in the same way as under the Income Tax Act and is taken as the actual income for the year preceding the benefit year. Options are permitted for persons who retire from employment or self-employment to substitute estimates of certain items of present income for those in the preceding year. To ensure equitable treatment of both single and married pensioners, the income for each individual married applicant is taken as one half of the combined total income of the married couple.

The maximum monthly supplement is reduced by \$1 for each full \$2 of a pensioner's monthly income over and above the old age security pension, enabling a single pensioner to have a total annual income of up to \$1,620 and married pensioners of up to \$3,240 before being eliminated from entitlement to even a partial supplementary payment. Payments can be made retroactively for up to four months before the application is made. Payments outside Canada cover temporary absences only. The program provides for appeals with respect to eligibility and to the amount of benefit payable.

On Mar. 31, 1967, three months after the program came into effect, 505,240 persons were receiving the supplement.

Canada Pension Plan

The Canada Pension Plan, introduced on Jan. 1, 1966, is an important new component of Canada's social security system. It is a contributory social insurance program that, with its Quebec counterpart the Quebec Pension Plan, covers most of the Canadian labour force.

Contributions are made on the portion of earnings between \$600 and \$5,000 a year. Employees contribute at the rate of 1.8 p.c. with a matching contribution made by their employers. Self-employed persons contribute at the rate of 3.6 p.c., provided that their earnings are at least \$800 a year.

Retirement pensions are based upon the contributor's previous earnings which are adjusted, before the pension is calculated, in accordance with changes in the maximum pensionable earnings under the Plan.

Retirement pensions are payable to retired contributors aged 67 or more in 1968. For 1969 the minimum pensionable age will be 66 and from 1970 on it will be age 65. Monthly retirement pensions are equal to 25 p.c. of the contributor's average monthly pensionable earnings. Before 1976, however, they will be payable at reduced rates. All pensions in pay are adjusted to reflect changes in the cost of living. Payment of retirement pensions requires that the contributor be retired from regular employment if he is under age 70. An earnings test is applied to persons receiving retirement pensions between ages 65 and 70. In 1968 survivors' benefits will be available, comprising a lump-sum death benefit, pensions for widows and disabled widowers, and orphans' benefits. In 1970, pensions will become available for disabled contributors and additional benefits will be paid to their dependent children.

On Mar. 31, 1967, three months after the commencement of payments, 3,475 persons were in receipt of pensions under the Plan.

Family Allowances

Family allowances are paid, normally to the mother, for children under 16 years of age born in Canada or who have lived in Canada for one year. Allowances are paid by the Federal Government from general revenues, involve no means test and are not considered income for tax purposes. The monthly rate is \$6 for children under 10 years and \$8 for children aged 10 to 15.



Family assistance at the same rates is paid for each child in Canada under 16 years of age supported by an immigrant who has permanent residence in Canada, or by a Canadian returning to Canada to reside permanently. It is paid for a period of one year, until the child is eligible for family allowance.

Quebec introduced its own family allowance program (described on p. 152) in legislation enacted in 1967.

At Mar. 31, 1967, allowances were being paid for 6,882,874 children and the payments for the 1966-67 fiscal year amounted to \$555,794,947.

Youth Allowances

In 1964 a program of youth allowances was introduced by which \$10 a month is payable for children aged 16 and 17, as an incentive to continue their training and education. The allowance is payable while the youth remains in school. It is also payable for children who because of physical or mental impairment are unable to attend school. For these children the youth allowances fill the gap between the discontinuance of family allowances and eligibility for disability allowances.

A similar program was initiated in Quebec in 1961 when that province's Schooling Allowances Act became effective. With the introduction of the federal program, arrangements have been made whereby a financial equivalent of the amounts otherwise payable in Quebec is paid to the Quebec government.

On Mar. 31, 1967, allowances were being paid for 412,121 youths, exclusive of those paid in Quebec. The amount expended by the Federal Government on such allowances during the 1966-67 fiscal year was \$47,395,945.

Canada Assistance Plan

The Canada Assistance Plan was enacted in 1966 as a comprehensive public assistance measure to complement other income security measures. It provides a single administrative framework for federal contribution, under agreements with the provinces, of 50 p.c. of the costs of assistance provided to persons in need and prescribed costs of welfare services that have a preventive or rehabilitative emphasis.

It is designed to replace the Unemployment Assistance Act, 1956, by which the Federal Government shared 50 p.c. of the costs of assistance granted to unemployed needy persons, although the latter Act may continue to be used to cover certain costs not included in the Canada Assistance Plan. At the option of the provinces, also, the Canada Assistance Plan may replace the programs of old age assistance, blind persons allowances and disabled persons allowances.

The Plan extends federal participation to the following costs not shared before: assistance to needy mothers with dependent children, maintenance of children in the care of provincially approved child welfare agencies, health care services to needy persons, and extension of welfare services to prevent and remove causes of dependency and to assist persons receiving assistance to become as self-supporting as possible. The only eligibility requirement specified is that of need.

Old Age Assistance, Disabled and Blind Persons Allowances

Assistance of up to \$75 a month is paid under the Old Age Assistance Act to needy persons aged 65 to 68 years; under the Disabled Persons Act to those 18 years of age or over who are totally and permanently disabled; and under

the Blind Persons Act to blind persons aged 18 or over. In each case there is a residence requirement of ten years, and the allowance is subject to a means test.

For old age assistance and disability allowances, total annual income may not exceed \$1,260 for a single person, \$2,220 for a married couple, and \$2,580 for a married couple, one of whom is blind. For blindness allowances it may not exceed \$1,500 for a single blind person, \$1,980 for an unmarried blind person caring for a dependent child, \$2,580 for a married couple when one spouse is blind, and \$2,700 for a married couple when both are blind.

Programs are administered by the provinces; the Federal Government reimburses the provinces for one half of the payments for old age assistance and disability allowances and for three quarters of those for blindness allowances. Alternatively, costs may be shared under the Canada Assistance Plan, or a province may elect, as Quebec has done, to contract out of these programs and receive instead an equivalent financial consideration. Supplementary payments are available under the provincial general assistance legislation for those recipients who are in need.

Mothers Allowances

Allowances to certain needy mothers with dependent children are provided by all provinces, in some through mothers allowances Acts, in others through general social assistance legislation. Assistance is granted to widows, mothers with husbands in mental hospitals, mothers who are deserted and mothers whose husbands are disabled. Some provinces provide also for mothers with husbands in penal institutions and for divorced, separated and unmarried mothers. Costs of allowances are shared with the Federal Government under the Canada Assistance Plan.

A sightless youth being instructed in the proper use of the white cane at the Toronto headquarters of the Canadian National Institute for the Blind. Through specialized training, CNIB assists and encourages blind persons to lead active and useful lives.



Fitness and Recreation

All provinces and most of the larger municipalities operate active fitness and recreation programs, both through the organization of community services and through the school systems.

The Federal Fitness and Amateur Sport Act of 1961 provides federal aid and stimulus to fitness and recreation activity through direct grants to national organizations or for purposes of national interest, through grants to the provinces and through the provision of direct services. The Department of National Health and Welfare administers the federal program, with the aid of a National Advisory Council and a federal-provincial committee of officials. Grants are made to encourage amateur sport and to assist Canadian participation in international competition. Training of staff for physical education and recreation is emphasized through grants for fellowships and other forms of aid for graduate and undergraduate students and training courses for voluntary leaders and coaches.

International Welfare

Canada has traditionally played an active role in a number of international agencies, both inter-governmental and voluntary, concerned with social welfare and social development. The Department of National Health and Welfare provides representatives to such organizations, participates in international studies and contributes to the development of Canadian government policy in this and related fields. Currently, the Deputy Minister of National Welfare is Chairman of the Executive Board of the United Nations Children's Fund and officers of the Department serve with other agencies in the field such as the International Labour Organization, the International Social Security Association, and the United Nations Commission for Social Development.

Under the External Aid Program, Canada supports a number of social welfare projects in developing regions and, as well, provides social welfare training for foreign students recommended by their governments. The necessary technical service to the bilateral and multilateral aid programs in this sector are supplied by the Department of National Health and Welfare, which also works closely with a number of Canadian voluntary organizations engaged in social development, many of which have technical personnel working in the field. The Overseas Institute of Canada acts as a clearing-house and information centre for the voluntary sector.

Other Welfare Services

Provincial and municipal government departments, in addition to administering income maintenance programs, offers a number of other services to the community. There are wide differences in the degree to which services have been developed. These may include child welfare and old age services, public housing, post-sanatorium rehabilitation programs, nursery and day care programs, recreation, family and juvenile courts and other correctional services, and the maintenance, supervision and licensing of welfare institutions.

An important role is also played by voluntary family service agencies which emphasize casework and counselling. In addition, more specialized organiza-

A social worker brings a child to a carefully selected foster home.



tions in some centres provide for particular needs such as homemaker services, recreation and day care centres, and services for such special groups as the aged, immigrants, youths and former prisoners. Voluntary agencies are financed by public contributions, usually through a united fund or community chest, and some may also be assisted by grants from municipal, provincial or federal governments.

Child Welfare and Protection. Services for children, especially those suffering from parental neglect or deprived of normal home life, were among Canada's earliest welfare programs. Child welfare agencies in most Canadian communities increasingly emphasize casework services designed to strengthen the family's capacity to care for its children. Action to transfer the guardianship of children from a parent to an agency is taken only on court authority.

The unmarried mother is assisted in social and legal problems and when the decision is to place the child, adoption is the usual method. Approximately 15,500 adoptions are completed in Canada annually.

Children in the care of agencies and not placed for adoption are usually cared for in foster homes, though institutions are still used extensively. Specialized institutions care for children having emotional disturbances or problems which cannot be met adequately in the normal foster home. Rapid expansion is occurring in community services for retarded children and many centres have classes and schools for them.

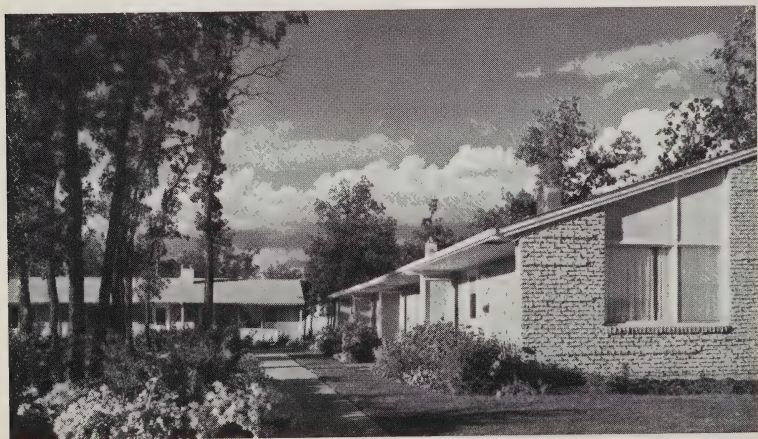
Child welfare services are provided under provincial legislation and all provinces have some central authority. Except in Quebec, the program may be administered by the provincial authority itself or may be delegated to local children's aid societies, which are voluntary agencies with local boards of directors supervised and assisted financially by the province.

Services are operated provincially in Alberta, Saskatchewan, New Brunswick, Prince Edward Island and Newfoundland. In Ontario, services are administered by a network of children's aid societies covering the entire province; in British Columbia, Manitoba and Nova Scotia, children's aid societies serve some areas with the province providing direct services elsewhere. In Quebec, child welfare services are provided by agencies and institutions under private, and largely religious, auspices with provincial supervision.

Services for the Aged. A variety of welfare services is offered under public and voluntary auspices to older persons in many communities. These include informational, counselling and referral services, friendly visiting, housing registries and homemaker services. Voluntary services are provided in several cities by family agencies and in a few by agencies organized especially to serve older persons. A large number of clubs and some centres have been established to provide recreational and social activities. Some centres have casework, counselling and employment services.

In recent years a number of specially designed low-rental housing projects have been built for older persons, particularly in Ontario and the four western provinces. Generally, these have been financed by a combination of federal low-interest loans, provincial grants and municipal and voluntary contributions. Welfare institutions, operated mainly by municipal governments or voluntary and religious organizations, care for many older people who do not require hospital care. The aged who are chronically ill are cared for in chronic and convalescent hospitals, private or public nursing homes.

Correctional Services. The responsibility for Canada's adult correctional services is shared by the federal and provincial governments. Institutions for prisoners receiving sentences of two years or more are a federal responsibility; institutions for short-term prisoners are under provincial jurisdiction.



St. James Kiwanis Court in Winnipeg, a low-rental housing project built to accommodate older persons, is one of several completed or planned in different centres by this voluntary service organization.

Voluntary welfare agencies supervise many of those on parole and provide after-care service. The juvenile services are under provincial jurisdiction with institutional care and preventive services provided by voluntary welfare agencies in some provinces.

Veterans Affairs

The Department of Veterans Affairs, the Canadian Pension Commission, and the War Veterans Allowance Board administer legislation providing benefits (such as disability and dependants pensions, war veterans and civilian war allowances, treatment, land settlement, home construction, veterans insurance) to eligible veterans, their dependants, their widows, and the children of the war dead. A summary of activity at Mar. 31, 1967, follows.

Benefits	Number	Liability or Cost
		\$
Disability and Dependants' Pensions	172,098	199,891,602
War Veterans and Civilian War Allowances	87,763	108,246,672
Hospital Patient Days (Apr. 1, 1966-Mar. 31, 1967)	3,079,553	74,665,505
Assisted under Veterans' Land Act (cumulative)	106,430	786,000,000
Training under Children of War Dead (Education Assistance) Act (cumulative)	4,157	6,474,715
Veterans Insurance	27,026	86,171,423
Returned Soldiers' Insurance	5,975	12,844,756

Effective Sept. 1, 1966, allowances under the War Veterans Allowance Act and Part XI of the Civilian War Pensions and Allowances Act were raised: for single persons, from \$94 to \$105 a month (the permissible income ceiling from \$133 to \$145 a month); and for married persons, from \$161 to \$175 a month (the permissible income ceiling from \$222 to \$245 a month). Assistance Fund Regulations were adjusted to conform with these changes. Effective the same date, the basic rate of disability pensions was increased by 15 p.c. to a maximum of \$230 a month for single veterans, and \$175 a month for widows.

On Mar. 31, 1967, the Department had 13 treatment institutions (10 active treatment hospitals and three veterans' homes) with a capacity of 7,010 beds. Departmental patients are also treated in non-departmental institutions; total in-patient days in departmental and non-departmental hospitals from Apr. 1, 1966, to Mar. 31, 1967, numbered 3,079,533.

In October 1966, as part of the long-term planning for continuing high-quality medical care for veterans, Sunnybrook Hospital was transferred to the University of Toronto, with an established priority for the admission and treatment of veterans. Similar arrangements are being negotiated to transfer Ste. Foy Hospital to Laval University and Lancaster Hospital to the Province of New Brunswick. A 150-bed veterans' home for domiciliary and long-term care was opened in Edmonton as part of the University of Alberta's medical complex. This unit was built by the Province of Alberta on a cost-sharing basis with the Federal Government. Plans were approved for a 640-bed chronic care hospital at Ste. Anne de Bellevue, Quebec.

In 1966 the Department announced that treatment rights for dental disease had been extended to include former prisoners-of-war suffering from dental disease attributable to avitaminosis or other associated nutritional diseases, and other veterans pensioned for, or holding treatment rights for, disabilities incurred on service as a result of nutritional deficiencies.

Early in 1967 the Department discontinued its correspondence courses for veterans and arranged for courses to be made available through existing provincial facilities.

Loans approved under the Veterans' Land Act during 1966 amounted to \$88,000,000 on behalf of 9,118 veterans. There were 4,485 new loans and 4,734 additional loans to veterans previously established. Of the number of veterans established, 20 p.c. have been accepted for group life insurance, protecting a total indebtedness of \$82,000,000. It is interesting to note that there remain only four active accounts under the Soldier Settlement Act which authorized the settlement of World War I veterans. The total indebtedness of these accounts is slightly under \$1,500.

Memorial ceremonies, as anniversaries arise, are held in many lands by the Department of Veterans Affairs to honour Canadian soldiers who have died in service. In 1967 one such ceremony was held in the UN Memorial Cemetery in Korea.



The 50th anniversary of the battles of the Somme was commemorated by Canada, other Commonwealth countries and France with appropriate ceremonies held in Newfoundland Park (at Beaumont-Hamel), Thiepval (near Courcelatto), Albert, Amiens, and Peronne in northern France in June and July 1967. The Canadian delegation, headed by the Minister of Veterans Affairs and including the Standing Committee on Veterans Affairs, subsequently visited war cemeteries in France, Italy, Holland, Belgium and Britain, and other places, such as the Menin Gate Memorial in Ypres, of special interest to Canadians.

In December 1966 commemorative ceremonies were held in Sai Wan Bay War Cemetery in Hong Kong and in Hodogaya War Cemetery, Yokohama, Japan, to mark the 25th anniversary of the battle of Hong Kong and the more than 700 Canadians who died there and in the prisoner-of-war camps.

Education

In Canada the provinces are responsible for the education of all persons except Indians, Eskimos, other children in the territories, inmates of federal penitentiaries and children of members of the armed forces on national defence stations. The Federal Government, which is responsible for these groups, also provides grants to each province to be divided among its universities and other post-secondary institutions, participates to a considerable extent in informal education and makes grants-in-aid for research personnel and equipment that assist educational institutions indirectly.

Provincial Departments of Education

Educational organizations, policies and practices differ from province to province. Each province has a department of education headed by a minister who is a member of the Cabinet. Ontario has, in addition, a Department of University Affairs under its Minister of Education. Each department is administered by a deputy minister who is a professional educationist and a public servant. He advises the Minister, supervises the department, gives a measure of continuity to its policy and in general carries out that policy and is responsible for enforcing the Public School Act.

A typical department of education includes the following additional members: a chief inspector of schools and his staff of local inspectors and directors or supervisors of curricula, technical education, and teacher training; and a registrar of examinations, teacher certification, guidance, audio-visual education, correspondence instruction, and adult education. Quebec operates a dual system with an associate deputy minister for the Roman Catholic and Protestant sectors. In Newfoundland, which has a denominational system, there is a superintendent for each of the five religious denominations recognized by the School Act.

The departments of education undertake, among other things, to provide: (1) supervisory services to ensure maintenance of standards, (2) the training and certification of teachers, (3) courses of study and prescribed or approved textbooks, (4) financial assistance to local school boards for the construction and operation of schools, and (5) regulations for the guidance of trustees and teachers.

Local Units of Administration. In all provinces, legislation provides for the establishment and operation of schools by locally elected or appointed educational authorities who operate under the School Act and are responsible to the provincial government and to the resident ratepayers for the construction and operation of the local schools.

Originally, rural school districts were about four miles square and pupils were within walking distance of the schools. A variety of influences in the changing rural scene has led to the establishment of larger units of administration in Nova Scotia, New Brunswick, Saskatchewan, Alberta and British Columbia and their establishment is being encouraged in Newfoundland, Prince Edward Island and Manitoba. Ontario has created 1,600 township school areas and plans are now under way to abolish these in favour of about

100 larger county units. In Quebec, the greater part of the Protestant system is organized into larger units, and the Catholic system has recently completed a reorganization of secondary education into 55 regions. Because of their size, cities have their own school boards but towns and villages are commonly consolidated with larger rural areas.

Teachers. Candidates for elementary teacher certificates in all provinces must have a minimum of high school graduation and at least one year of professional training in a faculty of education or a teachers' college. The training usually consists of professional and academic courses and some time spent in practice teaching. Secondary school teachers are generally university graduates who have taken an additional year in a college of education or who have graduated with a year in education. The trend is for the government departments of education to give the universities the responsibility for training elementary as well as secondary school teachers. Teachers' colleges now exist in only four provinces.

Most teachers in public schools are paid according to a local salary scale based on years of training and experience; they contribute to a provincial superannuation fund and are members of a provincial professional organization. Apart from teachers in Quebec and New Brunswick, concerning whom adequate data are not available, about 11 p.c. of those in elementary schools and 74 p.c. of those in secondary schools have university degrees.

School Organization

Kindergartens are a part of the public elementary school system in most large urban centres; some are included in private schools and many are privately operated. Most kindergartens accept only five-year-olds but a growing number are accepting four-year-olds. There are some nursery schools for children from three to five years of age, also mainly privately operated.

The majority of elementary and secondary school pupils in Canada are in public schools. Less than 4 p.c. attend private schools. Each September, most six-year-old Canadian children enter an eight-grade elementary school. At about 14 years of age, nearly 90 p.c. of these enter a regular four- or five-year secondary school. From the graduates at this level a limited number, about 13 p.c. of those who began school, go on to college or university where rather more than half of them pursue a three- or four-year program leading to a bachelor's degree in arts or science. The remainder enrol in various professional courses such as commerce, education, engineering, law, medicine and so on.

The 8-4 plan leading from grade 1 to university was the basic plan for organizing curricula in all but the Catholic schools of Quebec. However, this plan has been modified from time to time in all provinces and there are a number of variants to be found in Canada. For example, in some parts one or even two kindergarten years have been added at the beginning of the system. In others, an extra year has been added to the high school, providing five rather than four years of secondary schooling. Junior high schools have been introduced and the resulting organization changed to a 6-3-3 or 6-3-4 plan. Or again, the first six years of elementary school have been divided into two



Hundreds of new schools have been built in Canada in recent years—to serve children in newly established residential areas, to replace outmoded buildings, to accommodate rural children once scattered in small schools—all of them with adequate facilities for modern education, either academic or vocational, as individually required.

A composite high school at Yellowknife, N.W.T.

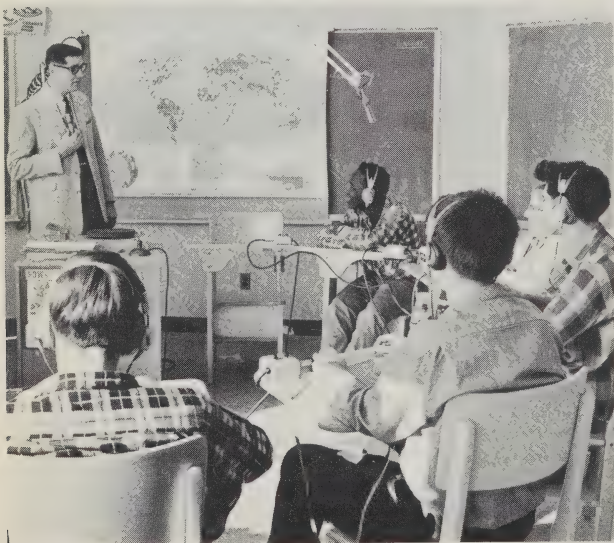
A new school at Ottawa is designed for a new method of instruction called "team teaching" which leads to an ungraded system and permits every pupil to develop at his own pace. It has few windows, air-conditioning, carpeted floors and movable walls that allow teachers to create teaching space needed. Partially enclosed desks give study privacy.



units of three years each. A fairly recent innovation is the establishment of junior colleges, in which at least one or two years of high school and the first one or two years of college are given. Some of these institutions offer vocational as well as academic programs.

The first secondary schools were predominantly academic, preparing their students for entry to university. Until recent years vocational schools were limited almost entirely to the large cities. Today, besides commercial and vocational high schools, there are increasing numbers of composite and regional high schools that provide courses in home economics, agriculture, shop-work and commercial subjects as well as the regular academic courses. The number of subjects offered has also increased greatly and the number of options available provides a wide choice for pupils with different abilities and aims. Three programs can frequently be distinguished: the university entrance course, the general course for those who wish to complete an academic course before entering employment, and commercial and other vocational courses. Considerable emphasis has been placed on music, art, physical education, guidance and group activities, but not at the expense of the basic subjects which provide a general foundation.

Interest is increasing in the education of exceptional children. In 1966 over 120,000 children were in special schools or classes. Almost 87 p.c. of these children were in public schools. Sometimes special classes are started by the parents of children with a common disability. These classes are then taken over by public bodies. Special classes are most commonly found in city school systems; in rural areas there is usually little provision for such children except in residential institutions. In many cities there are classes for the hard-of-hearing, partially blind and other physically and mentally handicapped and a few for the highly gifted.



The Interprovincial School for the Education of the Deaf at Amherst, N.S., is one of 15 such schools in operation across Canada where courses in academic and vocational subjects are specially adapted to the needs of deaf children.

Education in Quebec. Differences in education in Quebec are of historical origin and arise out of the French-Canadian conception of education. There are two basic differences. Quebec has two parallel and distinct programs of education operating under a common Act, the Catholic system and the Protestant (or non-Catholic) system; the school population of the former (which includes about five sixths of the total) is largely French-speaking, and that of the latter is largely English-speaking. The Protestant English-language program is similar to that of the other provinces.

In the Catholic French-language program, kindergarten and nursery departments exist in both public and private schools. The elementary level extends from grades 1 to 6. The secondary level includes grades 7 to 11 or 12 and has six divisions — mathematics, arts, commercial, science-letters, science-mathematics, and classical courses.

Two-year courses in trades training begin after the tenth year and institutes of technology offer technical courses of two or three years duration following the eleventh year. Also, after the eleventh year students may take a one-year intensive commercial or trade course, or a two-year technical course. Students who follow the classical course may, after grade 11, enter a classical college affiliated with a university and take a four-year course leading to a baccalaureate. Students from this course enter the professional faculties of the French-language universities.

Classical colleges and institutes of technology are being replaced by colleges of general and technical education. They require grade 11 for entrance and offer two programs—a two-year program leading to university and a three-year program leading to a diploma in a technical or vocational field.

Vocational and Technical Education

Vocational and technical education at both the secondary and post-secondary levels has grown considerably in the past decade. Some 65 institutes of technology offer courses of from one to four years with junior matriculation or the equivalent as the minimum qualification for entrance. Graduates from these institutions, commonly called technicians, fall between university-trained scientific personnel and skilled labour. More than 30 trade and vocational schools, mostly in Quebec and Ontario, provide either complete post-secondary courses or the first year or two of such courses.

Most regular secondary schools provide a limited number of options in such subjects as agriculture, home economics, shorthand and typing. Vocational, technical and commercial high schools are an integral part of the high school system of some provinces. Composite schools, whether urban or regional high schools, usually provide several optional programs (in academic or technical subjects, agriculture, home economics, or commerce), and may allow individual students to choose courses from different programs.

Provincial trade schools and institutes of technology are operated by the provinces to complement the work undertaken in vocational high schools. Some of these are clearly post-secondary institutes with courses designed to prepare highly skilled technicians for a variety of fields. Others are essentially

trade schools offering six-week to two-year courses, mostly at the secondary level. Some schools of this kind offer a wide range of courses, from engineering technology to stenography, and from business machine operation to cookery.

Private trade schools provide a wide variety of courses in such subjects as beauty culture and diesel engineering; they prepare students for occupations as different as postal clerk, musician or welder. There are over 225 private business colleges which train typists, stenographers, book-keepers, office machine operators, secretaries and others. Most offer part-time and evening courses as well as full-time day courses and a few offer correspondence courses.

Nursing education is provided in post-secondary schools of nursing attached to the larger hospitals, some 20 of which are attached to universities. Advanced training is available at several universities.

Apprenticeship training in the skilled trades is provided in accordance with regulations of the provincial Departments of Labour, assisted financially by the Federal Department of Labour and by private companies.

Higher Education

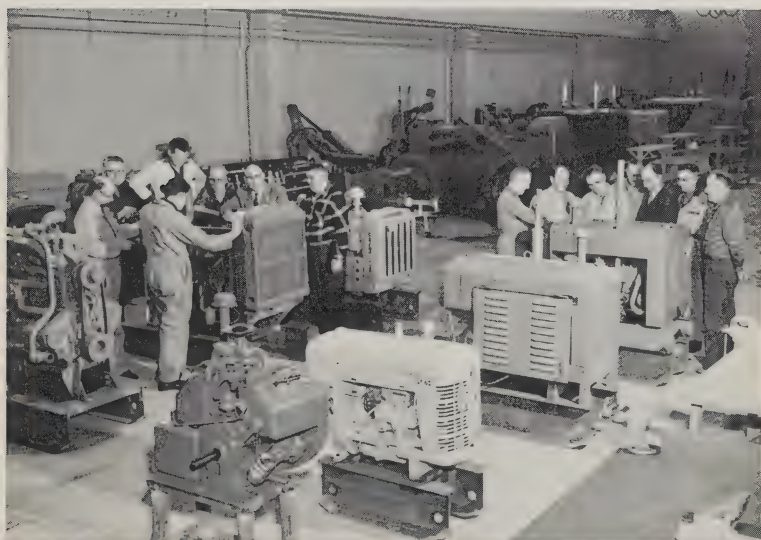
Two somewhat different systems of higher education have grown out of the two distinct cultures upon which the Canadian nation is founded. One was originally patterned on the French system before the secularization of higher education in France but most of the institutions under the control of Catholic religious orders have been adapting North American traditions in recent years while still retaining distinctively French characteristics. The other was designed according to English, Scottish and American practices with instruction given in English; they may be controlled by religious denominations, governments or private bodies. Institutions comprising a third small group and giving instruction to both English-speaking and French-speaking students are operated or controlled mainly by Roman Catholic groups, although the first such bilingual institution to be established, the University of Ottawa, was reorganized in 1965 under a non-denominational board of governors.

Legislation establishing new institutions is usually enacted by provincial legislatures. Once an institution is legally chartered, control is vested in its governing body whose membership is indicated in the charter. The line of authority runs from the board of governors through the president (or rector) to the senate and deans and the faculty as a whole.

Although there are variations, most students enter a university (or the *cours collégial* of a *collège classique* after completing 11 to 13 years of elementary and secondary schooling. In from three to five years, courses of instruction lead to a bachelor's degree in arts, pure science and such professional fields as engineering, business administration, agriculture and education. Courses in law, theology, dentistry, medicine and some other fields are longer — usually requiring for admission part, or all, of a first-degree course in arts or science. For those pursuing graduate studies and research, the second degree is the master's or *licence* — at least one year beyond the first degree — and the third is the doctorate, normally requiring at least two additional years beyond the second degree.



Laurentian University in Sudbury, Ontario, has been in operation since 1960. It is one of the thirteen new universities established across Canada within the past twenty years.



The diesel section of the Northern Alberta Institute of Technology at Edmonton. Graduates of post-secondary institutes of technology are trained to fill that important gap in industry between the labourer and the professional engineer.

Adult Education

Many opportunities are provided for further academic, vocational and cultural experiences beyond the regular full-time school system, and large numbers of adults return to regular full-time classes in secondary schools, special schools and post-secondary schools to upgrade and advance their education. Each province has developed its own programs, operated chiefly by local school boards, provincial schools and institutes, universities and voluntary and private organizations at national, provincial and local levels.

Many public and private institutions and organizations also sponsor informal public lectures, film showings, guided tours, musical and dramatic performances and similar activities of an educational nature for adults. Workshops, conferences and residential adult education, as well as regular courses, help prepare those who staff these activities.

Statistics of Canadian Education, 1964-65

Type of School or Course	Schools	Full-Time Teachers	Enrolment
	No.	No.	No.
Full-Time Courses			
Elementary and Secondary Education—			
Public and separate schools ^{1,2}	21,610	191,097	4,731,602
National Defence schools (overseas)	22	396	7,282
Indian schools ³	395	1,218	32,800
Schools for the blind	6	103	815
Schools for the deaf	13	373	2,684
Private schools ²	1,135	12,300	200,008
Higher Education—			
University grade	370	14,300	178,238
Teacher Training—			
Teachers' colleges	122	1,463	21,740
Faculties of education ⁴	26	640	15,918
Vocational Education—			
Trade courses (apprenticeship) . . . . .	..	..	15,318
Trade courses (pre-employment) . . . . .	..	..	36,501
High schools ⁵ . . . . .	..	..	225,184
Institutes of technology	41	1,692 ⁶	20,105
Private business schools	236	..	21,426
Private trade schools	327	824	17,561
Totals . . . . .	..	..	5,527,182
Part-Time Courses for Adults			
Publicly Operated—			
Academic . . . . .	..	..	174,922
Vocational . . . . .	..	..	1,596,194
Other (social, cultural, etc.) . . . . .	..	..	213,901
Universities and Colleges—			
Academic, for credit toward a degree	82	..	134,186
Other (extension, etc.)	51	..	171,404
Teacher training institutions . . . . .	..	..	43,577
Private business schools	236	..	23,135
Private trade schools	102	..	40,835
Public libraries	24	..	8,179
Training in industry . . . . .	..	..	80,958

¹Includes schools in the Territories administered by the Federal Government. ²Includes preliminary figures for Quebec. ³Day, residential, and hospital schools administered by the Federal Government. ⁴Included under "Higher Education". ⁵Included under "Public and separate schools". ⁶Estimated. .. Not available. ... Not applicable.

Religion

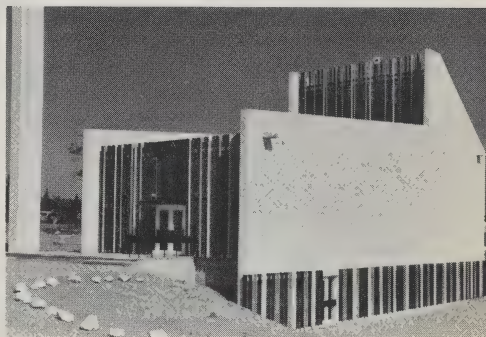
That freedom of religion prevails in Canada is evident in the number and variety of Christian sects and other faiths which conduct services throughout the country. Religious freedom is guaranteed by the Canadian Bill of Rights, "An Act for the Recognition and Protection of Human Rights and Fundamental Freedoms" passed by Parliament in 1960.

The people of Canada are predominantly Christian. As recorded by the 1961 Census, the three numerically largest denominations were Roman Catholic with 8,342,826 adherents, the United Church of Canada with 3,664,008, and the Anglican Church of Canada with 2,409,068.

Catholicism came to Canada with the French explorers. A priest who accompanied Jacques Cartier celebrated mass at Gaspé on July 7, 1534. In 1615 Samuel de Champlain brought Franciscan Récollets from France to minister to the colonists and to teach the faith to the Indians. These religious leaders in turn invited the Jesuits to aid them in their cause, and a group landed in 1625.

The United Church of Canada dates from 1925 when Methodist congregations, nearly all of the Congregationalists, and approximately two thirds of the Presbyterians in Canada joined together to form one united religious body.

The Anglican Church of Canada (until 1955 the Church of England in Canada) held its first regular services in 1710 at Port Royal. The first Protestant place of worship was St. Paul's Church, built at government expense in Halifax, N.S., and completed in 1750.



Church architecture has gone very modern, having passed up almost completely the traditional stone and spire-mounted design.

Other faiths shown in the Census of 1961 were: Presbyterian (818,558); Lutheran (662,744); Baptist (593,553); Jewish (254,368); Greek Orthodox (239,766); Ukrainian (Greek) Catholic (189,653); Mennonite (152,452); Pentecostal (143,877); Salvation Army (92,054); Jehovah's Witnesses (68,018); Christian Reformed (62,257); Mormon (50,016); Evangelical United Brethren (27,079); Adventist (25,999); Churches of Christ, Disciples (19,512); Christian Science (19,466); Christian and Missionary Alliance (18,006); Brethren in Christ (16,256); Unitarian (15,062); Free Methodist Church of Canada (14,245); Church of the Nazarene (13,412); Doukhobor (13,234); Plymouth Brethren (12,326); Buddhist (11,611); and Confucian (5,089). Members of smaller Christian and other sects, and non-believers numbered 283,732. In addition to the Bill of Rights, which protects religious and other freedoms, provincial and federal laws have been passed to eliminate discrimination because of race and religion.



Canada is fortunate in having three highly accomplished professional ballet groups—the Royal Winnipeg Ballet, the National Ballet of Canada and Les Grands Ballets Canadiens—each of which has acquired a continuing audience.

The Arts

The arts played a conspicuous part in celebrations of the hundredth anniversary of Confederation. The traditional art forms appeared at Expo 67 in magnificent exhibitions of painting and sculpture, and in the World Festival of Entertainment which included some of the finest international opera, ballet, theatre and music. The most advanced film techniques were triumphantly successful there as entertainment, instruction, and what could be called psychedelic experience. Poetry was represented at a symposium drawing representatives from many countries. Above all, perhaps, the Expo environment was itself the result of one of the most ambitious experiments ever undertaken by modern architects and designers.

In other parts of the country, special Centennial funds were devoted by the federal and provincial governments to the building of cultural centres. Festival Canada, a project of the Centennial Commission, sent leading Canadian companies and visitors from abroad on extensive tours and made possible special productions at home by orchestras and theatrical, operatic and ballet companies. Museums and galleries organized Centennial exhibitions. Commission grants, particularly in the field of music, expanded the usually limited opportunities for creative artists.

During its ten-year history, the Canada Council has helped almost every professional performing arts organization in the country. Many art museums have received assistance, especially for their exhibition programs. The Council also accepts applications from publishers for aid in producing literary works, art books and periodicals. Individuals receive direct support through

awards, bursaries and grants for special purposes. Special programs such as the establishment of its own collection of works by contemporary artists and a training program for theatrical administrators and technical personnel have been inaugurated. The Council also makes grants to certain national service organizations such as the Canadian Theatre Centre and to a few training institutions that accept students from across the country, notably the National Theatre School.

Other federal institutions have an important influence on the artistic life of the country. The National Gallery houses a major international collection in Ottawa, circulates exhibitions throughout Canada and encourages contemporary Canadian artists by purchasing many of their works. The National Film Board and the Canadian Broadcasting Corporation, whose activities are dealt with elsewhere, are creative forces in film, radio and television production and have a significant impact on all the performing arts. The Department of Indian Affairs and Northern Development has helped the Eskimos cultivate traditional art forms and learn new techniques, and has displayed these to the world. The Department of External Affairs has created a Cultural Affairs Division to deal with an expanding program of international cultural exchange. The National Arts Centre, now being built in the heart of Ottawa, will include a combined concert hall and opera house seating 2,300, a theatre seating 900 and a studio theatre with 300 seats.

Provincial governments are also increasing their assistance to the arts. Quebec's Ministry of Cultural Affairs makes grants to a variety of arts organizations located within the province and provides awards and prizes to individual artists. It has two theatre companies of its own which give performances for students in Montreal and tour French Canada. It has encouraged cultural exchanges with European countries, particularly with France. The province also fully finances its own training institutions in music, the theatre and the visual arts. The Ontario Council for the Arts, established in 1964, devotes its budget mainly to amateur and professional arts organizations and to special programs designed to stimulate activity in selected fields. The Saskatchewan Arts Board is the oldest provincial institution of its kind and a model of support for community activity in the arts. All other provinces provide assistance to the arts through various departmental channels.

The response of municipal authorities to artistic needs is even more varied than it is at the provincial level but there can be no doubt that Montreal is the leader in this field. The Greater Montreal Arts Council draws on special tax revenues which it distributes mainly in grants to the many excellent performing arts organizations. The Salle Wilfrid Pelletier at the Place des Arts is the focal point of the musical life of the city. With the recent addition of two smaller auditoriums, the Théâtre Maisonneuve and Théâtre Port-Royal, the Place des Arts will probably become a centre for more local dramatic productions.

Festivals

The closing attraction of Expo's unique international showcase of the performing arts was the Stratford Shakespearean Festival. In 16 seasons the

Festival has created in the small Ontario town, which is its summer home, a classical company of the first rank. The circus tent where Sir Tyrone Guthrie and designer Tanya Moiseiwitch first realized the audacious dream of Stratford-born journalist, Tom Patterson, has been replaced by a permanent theatre considered highly successful by both actors and audiences. Guthrie's revival of the Elizabethan thrust stage has shaped the style of the company and has been emulated elsewhere, notably at the Chichester Festival Theatre in England. After the departure of Guthrie in the mid-1950s, the Festival was guided by another British director, Michael Langham. In 1968 a Canadian, Jean Gascon, was placed in charge.

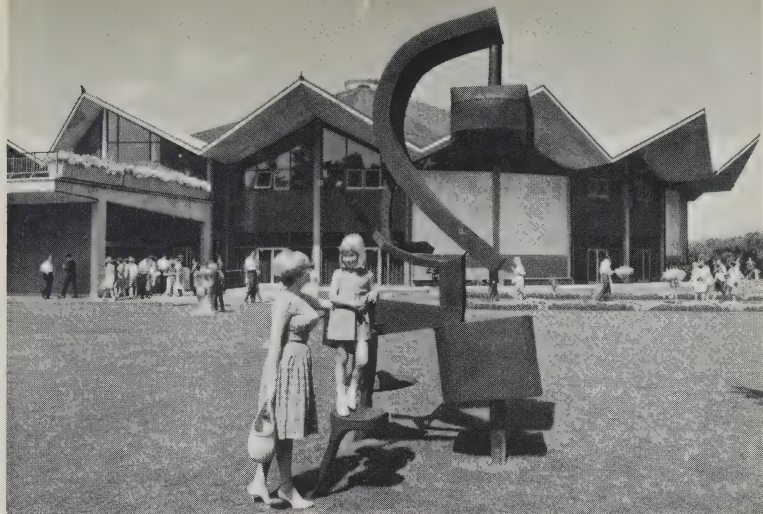
For several years the Festival's musical program has been growing in importance. Sunday recitals by internationally known artists and the informal Saturday chamber concerts by members of the Festival Orchestra have a faithful audience. Opera, however, has recently dominated the musical program and Mozart has been the Festival's most favoured composer. Opera productions and plays more suited to the proscenium than the thrust stage are presented in the now fully modernized Avon Theatre. The intimate association of the two arts at Stratford has led to the formation of a unique workshop where actors can learn something of music and singers may develop their acting technique.

In 1967, the Company extended its usual four-month summer season to a record 38 weeks, during which it mounted 11 productions. In the future the company will continue to perform throughout the winter as the Stratford National Theatre of Canada, the resident English-language company in the National Arts Centre in Ottawa.

The Vancouver Festival, dropping the word "International" from its title, now works more closely with local organizations. Highlights of the tenth festival in 1967 were the *Girl of the Golden West* produced by the Vancouver Opera Association and a gala opening concert by the Vancouver Symphony Orchestra, with Sir Arthur Bliss conducting his own composition *Morning Heroes*. The touring Royal Ballet gave five performances during the festival and there were several other attractions, including art exhibitions. Gordon Hiker, who directed Expo's World Festival, became Artistic Director in November 1967 for a three-year term.

On the East Coast, the Charlottetown Festival in the Fathers of Confederation Memorial Centre continued to exploit native drama and musical comedy, offering a new musical by Pierre Berton, and reviving its perennially successful *Anne of Green Gables* by Don Harron and Norman Campbell. *Anne* was the most successful touring attraction of Centennial year; it was seen by 75,600 people in 11 Canadian cities. The play for the 1967 season was Gratien Gélinas' *Yesterday the Children Were Dancing*, translated from the French by Mavor Moore. Artistic Director Moore is retiring after launching the Festival four years ago. His successor is Alan Lund.

Another summer festival which is drawing more attention is the Shaw Festival, founded in 1964 by Brian Doherty. The durable popularity of Shaw and his contemporaries is proven by the audiences crowding the tiny



The Festival Theatre at Stratford in western Ontario is now very familiar to a great number of people who attend its performances every season. The town itself is conscious of the cultural interests of the visitors and has become a centre of artistic display. "Sphinx", the metal sculpture shown, is by Paul Borduas of Beloeil, Que.

Courthouse Theatre in Niagara-on-the-Lake, the historic Ontario town whose gracious dignity is an added attraction to the visitor. Barry Morse, whose energetic leadership did much to boost awareness of the Festival in 1966, has been succeeded as Artistic Director by Paxton Whitehead.

Theatre

Although the Stratford Festival dominates the theatre of English Canada, the regional theatre movement gives it growing strength and depth. The movement was launched ten years ago when John Hirsch and Tom Hendry founded the Manitoba Theatre Centre in Winnipeg, an institution which is now a model of its kind in North America. Ranking with it in Canada are the Neptune Theatre in Halifax and the Playhouse Theatre Company in Vancouver. These models have inspired the establishment of professional and semi-professional companies in Victoria, Edmonton and Calgary. There is a remarkable degree of co-operation within this movement, fostered particularly by the Canadian Theatre Centre which went into full-time operation in 1965.

The Manitoba Theatre Centre presents seven main stage productions a season. Its Young Company tours local schools and offers an experimental Studio Series. An active theatre school is another link with the community which gives whole-hearted support to its theatre. Edward Gilbert, successor to John Hirsch, has the responsibility of re-establishing the MTC in its new theatre in the cultural centre, to be completed in 1969.

Leon Major created the Neptune Theatre of Halifax in 1963 and made it one of the few Canadian companies that works in something close to the true repertory system, with a group of actors engaged for a season that usually begins in early summer. Located in an attractively renovated theatre with all

its offices and workshops under the same roof, Neptune is also one of the few self-contained operations in Canada.

In Vancouver the Playhouse Theatre Company has in five seasons drawn together much of the city's ample but diffused theatrical talent. Under retiring director Malcolm Black, the Playhouse was unusually active in producing new plays, too rarely seen in English Canadian theatres. Mr. Black's successor is Joy Coghill, who merged her Holiday Theatre with the Playhouse. This move has given the Playhouse a ready-made "young company" with a wide reputation earned by several years of touring for student audiences throughout British Columbia.

The Prairie Provinces came to life with the establishment, three years ago, of the Citadel Theatre in Edmonton and other cities are following suit.

In 1966 Toronto's two major resident companies, the Crest Theatre and the Canadian Players, both closed, but on Jan. 17, 1968, Theatre Toronto, formed from a merger of the two groups, opened a season of four plays. The Crest Theatre had been founded in 1953 by Donald and Murray Davis and their sister, Barbara Chilcott. Composed of Stratford actors who toured nationally for several years, the Canadian Players had in 1966 completed an experimental year of residence in the tiny Central Library Theatre combined with touring, an innovation devised by the co-directors Marigold Charlesworth and Jean Roberts. Theatre Toronto's outstanding success was the English-language première of Rolf Hochhuth's *Soldiers*, with John Colicos starring, which was taken to New York.

For the past 20 years theatre has been one of the cultural glories of French Canada. Of its nine French-language theatres, three institutions which grew up during that period continue to dominate the scene. The postwar founding of Les Compagnons du Saint-Laurent by Father Émile Legault led directly to the establishment of the professional Théâtre du Nouveau Monde by Jean Gascon and Jean-Louis Roux. Le Théâtre du Rideau Vert also appeared in the early 1950s under Yvette Brind'amour and Mercédès Palomino. In 1957 playwright and actor Gratien Gélinas opened La Comédie-Canadienne as a home for native drama in both languages.

Le Théâtre du Nouveau Monde, under the direction of James Domville since July 1968, has been plagued by the lack of permanent quarters. In 1966 it was forced by the demolition of the Orpheum Theatre to return to its first home in the Salle Gésu. Despite the physical limitations of this historic church auditorium, the 1967 program included a magnificent and moving production of Claudel's *Le Soulier de Satin*, with Albert Millaire in the leading role. At the close of Expo, the TNM was able to work in modern quarters in the Théâtre Port-Royal, although only temporarily. During the 1967 season the TNM took under its wing Les Jeunes Comédiens, a company of National Theatre School graduates displaced by the demise of its former sponsors, the Canadian Players. Gaëtan Labrèche, as Artistic Director, devised two programs for his young artists, who play in French for both English- and French-speaking audiences, usually students.

Le Théâtre du Rideau Vert first attracted a loyal audience to its present home in the Stella Theatre with light comedy, but in recent years Mme Brind'amour has varied her program with the classics. It was, in fact, after



Le Théâtre du Nouveau Monde of Montreal is one of Canada's top resident professional companies. It was the first Canadian group invited to participate in the Paris Drama Festival and was highly acclaimed in London during the Commonwealth Arts Festival.

seeing a production of Marivaux' *L'Heureux Stratagème* that the Cultural Affairs Minister of France invited the company to Paris in 1964. A second trip in 1965 was followed by a visit to the Soviet Union where audiences gave a warm reception to the only Canadian theatre company ever seen there. These tours had to be fitted in with a nine-month season at home. Not the least important contribution of Le Rideau Vert has been the introduction of novelist Françoise Loranger to the theatre in two plays of which the second, *Encore cinq minutes*, was particularly successful.

Gratien Gélinas has made his *Comédie Canadienne* a magnet for Montrealers. In recent years, however, he has been forced by financial problems to limit original production and to operate mainly as a landlord for mass appeal shows, often those of the talented Quebec chansonniers. He continues to produce new dramatic works whenever possible, including his own *Hier, les enfants dansaient*, which had an extended run in the spring of 1966.

Complementing the work of these theatres are a number of small companies. Some, like the professional *L'Egrégore* (now administered by *La Comédie-Canadienne*) and the talented amateurs, *Les Apprentis-Sorciers*, are devoted to the repertoire of the avant-garde. The Montreal International Theatre, playing in French, English and occasionally German, performs in an old powder magazine on St. Helen's Island. One of Quebec's more original theatrical talents. Paul Buissonneau, has his own *Théâtre de Quat'sous*, and the Quebec Government operates two companies, *Le Théâtre Populaire*

de Québec which tours with productions of the classics, and La Nouvelle Compagnie Théâtrale which offers a regular afternoon series for students in Montreal. Less fortunate than their French-speaking fellow citizens, English-speaking Montrealers have had only the programs of Instant Theatre at the Place Ville Marie to sustain them. The most unusual theatre in Montreal, or in Canada, is the floating *L'Escale*, aboard what was once a ferryboat. After a summer cruising the St. Lawrence and the Seaway for engagements on the north shore of Quebec up to Kingston, *L'Escale* is docked in Montreal for its winter season. Outside the metropolis there is a marked falling off, but the efforts of the youthful Théâtre de l'Estoc in Quebec City to bring contemporary theatre to *la vieille capitale* deserve mention.

With all this activity, Montreal's only rival as a theatre centre on this continent is New York. It is thus a fine location for the co-lingual National Theatre School, established in 1960 by Jean Gascon, Powys Thomas and James de B. Domville with Michel Saint-Denis as consultant. Both French- and English-speaking students benefit from annual exposure for a term to the Stratford Festival. Senior design students have the added opportunity of being integrated into the Festival's production operation. Staffed by working professionals, the school is widely regarded as the best of its kind in North America and its graduates are to be seen in companies from coast to coast.

Another important national institution, once the principal showcase for Canadian theatrical talent, is the bilingual Dominion Drama Festival. In 1967 its festival was held in St. John's, Newfoundland, and participants selected from across the country presented a program composed entirely of new Canadian plays. The winning play that year was *Le Pendu* by Robert Gurik. At Windsor, Ontario, the scene of the 1968 festival, John Herbert's *Fortune and Men's Eyes*, performed by players from Acadia University, was chosen best play of the year.

Dance

Canadian achievement in ballet is particularly remarkable, considering the size of the population and its limited tradition. The three professional companies have their own aims and characteristics and have acquired a continental audience (essential for economic and artistic reasons) with extensive touring through the United States and Canada.

Established as an amateur company in 1939 by Gwenneth Lloyd and Betty Farrally, the Royal Winnipeg Ballet is the oldest of the three. The company of about 30 dancers became fully professional in the mid-1950s under its present Director, Arnold Spohr, and has acquired a reputation for western freshness and vitality. The RWB has rendered a particular service as a Canadian outlet for the outstanding choreographer, Brian MacDonald, former Artistic Director of the Royal Swedish Ballet and now with the American Harkness Ballet. Many of Mr. MacDonald's works remain in the repertoire, including his internationally successful *Aimez-vous Bach?* and his three-act work, *Rose Latulippe*, first performed in 1966 at the Stratford Festival.

The English ballerina and choreographer Celia Franca came to Canada in the early 1950s at the invitation of a group of Toronto patrons to found the National Ballet Company. With inadequate resources but determination, Miss Franca has built a company of some 50 dancers, and a repertoire that includes

Rose Latulippe, a full-length ballet based on French Canadian folk legend and commissioned by the Centennial Commission, was first performed by the Royal Winnipeg Ballet at the Stratford Festival and has continued as part of the Ballet's repertoire.



many of the famous classics as well as modern works. In recent years the National Ballet has won special approval for several elegant and theatrically appealing productions, such as John Cranko's *Romeo and Juliet* and a revival of Dame Ninette de Valois' *The Rake's Progress*, authentic even to the Rex Whistler décor and costumes. The National Ballet's association with the great Danish dancer Eric Bruhn has been particularly fruitful. For them he staged the early Bournonville classic *La Sylphide*, alternating in the role of James with Rudolf Nureyev during the first performances in Toronto. Mr. Bruhn returned in 1966 to create a lavish new *Swan Lake*, an event which drew ballet critics from many countries.



Les Feux-Follets offers a varied and attractive program of Canadian folklore. In song and dance the group reveals original and picturesque aspects of Canada's many cultural backgrounds.

The even shorter history of Les Grands Ballets Canadiens began some ten years ago when Ludmilla Chiriaeff assembled a small group of dancers to appear on CBC television's French network. Today Mme Chiriaeff retains her connection with the company but has passed full-time artistic control to Fernand Nault, who is also advised by the famous English dancer, Anton Dolin. Long cut loose from television, the company now numbers some 40 dancers and is able in its Montreal appearances to fill magnificently the stage of the Salle Wilfrid Pelletier at the Place des Arts. One of its most memorable productions opened the 1966-67 season — Carl Orff's *Carmina Burana*, with full choir and choreography by M. Nault was a great success with Montreal audiences.

Many individual teachers provide dancing instruction throughout the country and each of the professional companies has a related school; that of Les Grands Ballets Canadiens has branches in several Quebec cities. The National Ballet School, however, is the only one providing residential facilities and a complete academic course to matriculation. In 1966 Martine van Hamel, now with the National Ballet Company, won international recognition for Canada and the school by taking first place in her class at a competition in Bulgaria where other entrants included dancers formed in leading Russian schools. Miss van Hamel's success is a happy augury for the future of Canadian ballet.

Other dance forms have not yet achieved the same standing in Canada as the ballet. National interest is nevertheless growing in a young folk-dance company, Les Feux-Follets, which is already a solid favourite in Quebec. Michel Cartier formed this group originally in 1952 with the intention of providing recreation for young people and deepening their knowledge of the folklore of their province. In 1964 he took the major step of creating a professional ensemble, with a program including traditional dances of Canada's native peoples as well as those brought to this country by European settlers. Today Les Feux-Follets is a company of 65 dancers, singers and musicians. It has toured nationally with Festival Canada and was a daily attraction in the Canadian Pavilion at Expo. No parallel advance has yet been made by modern dance, although it is a highly developed art form in the United States.

Opera

It has long been a commonplace comment on Canadian opera that the many fine singers developed here were forced, as they approached vocal maturity, to go abroad to make their careers. It is still the main ambition of many young singers to gain stage experience and broaden their repertoire in the provincial opera houses of Germany or Austria or to join the strong Canadian contingent at London's Covent Garden. Yet today it is possible for Canadians to welcome home international stars like Jon Vickers, Louis Quilico and Teresa Stratas — all of whom appeared in the Montreal Symphony's production of *Otello* in 1967 — because of the upsurge in operatic production which has taken place in the past decade.

The Opera School of the Royal Conservatory of Music in Toronto has formed a significant number of Canada's better voices since the war and is the matrix of the country's major opera organization. The Canadian Opera Com-

pany took its present name in 1959 after an evolutionary process which began with the school's student productions. Today it gives Toronto a month-long season of grand opera at the O'Keefe Centre and organizes national tours by a small company that offers compact productions in English of works chosen to meet the needs and facilities of communities large and small. In 1966 the company presented its first production of a Canadian opera, *Deirdre*, by composer Healey Willan and author John Coulter.

For the Centennial season, General Director Herman Geiger-Torel again chose to give much-needed encouragement to Canadian composers and to challenge the public with a radical departure from the standard repertoire to which it is accustomed. Raymond Pannell's *The Luck of Ginger Coffey* is based on the contemporary Montreal novel by Brian Moore, and *Louis Riel* is Harry Somers' musical exploration of the colourful character of the 19th century Métis leader. Also included during the season were the popular favourites, *Il Trovatore*, *The Tales of Hoffmann*, *The Barber of Seville* and *Madame Butterfly*.

Domestic production in Montreal was limited for many years almost exclusively to the annual productions of Mme Pauline Donalda's Opera Guild and the summer offerings of the Montreal Festivals, which ceased in 1965. When the Montreal Symphony took up residence in the newly built Place des Arts in 1963, however, it acquired an interest in the operatic potential of the Salle Wilfrid Pelletier and its productions have since dominated the Montreal scene. The zest and talent of the orchestra's former Musical Director, Zubin Mehta, gave Montreal two fine productions a year. Mr. Mehta returned to conduct *Otello*, one of the Montreal Symphony's two contributions to the Expo 67 World Festival. The other, *Faust*, was conducted in the hall named for him by Wilfrid Pelletier who returned some years ago to play an active part in the musical life of his native country after a distinguished career with the Metropolitan Opera in New York.

Other Canadian cities have found ways to provide a limited season for the growing audience for opera. The Vancouver Opera Association has been doing creditable productions since 1955, attracting major names and rising talents from Canada and abroad. The Australian soprano, Joan Sutherland, sang her first Norma with the VOA in 1963 and returned in 1967 in her most famous role, Lucia. A promising experiment was launched by the company in 1966 with the formation of a workshop under Robert Keyes of Covent Garden. A group of carefully selected young singers will appear in major productions and will have other opportunities to work as an ensemble outside the regular season. In Quebec City, Le Théâtre Lyrique de Nouvelle France has for several years presented Canadian casts in works chosen usually from the French repertoire. The Théâtre made a happy selection in 1966 in *Mignon*, created exactly one hundred years before at the Opéra Comique in Paris, and early in 1967 Jacques Létourneau directed a lively production of *La Périhole*. The company is supported in its productions by l'Orchestre Symphonique de Québec.

The growing importance of opera in the program of the Stratford Festival has been mentioned elsewhere and is worth remembering, for the Stratford productions are among the most interesting to be seen in Canada. They are noted particularly for the quality of their ensemble work, a result perhaps of the relatively extensive rehearsal time not always available to other companies

and of the proximity of a strong dramatic tradition. The new workshop program holds promise, for its informality and flexibility will permit an experimentation seldom attempted in Canada. It may be that to Stratford will go the credit for whatever innovations Canada may produce in operatic forms and techniques.

Music

A fully developed musical community requires a complex assembly of facilities and talents, not all of which are yet to be found in Canada. A high standard has nevertheless been achieved in some areas of music, largely because of the needs of broadcasting as well as the demands of the general public. These needs have been met not only by native Canadians but by an influx of teachers, musicians and scholars from Britain, Europe and the United States. While this traffic may be expected to continue, it is likely to diminish with continuing efforts to strengthen conservatories and university music departments, to introduce new training techniques and to expand the musical audience with special programs for young people.

The growing emphasis on youth has produced some interesting programs. The National Youth Orchestra, founded in 1960, attracts players, most of whom are between the ages of 16 and 23, from all parts of the country to an annual training session under first-rank teachers from Canada and abroad. The orchestra's first Director, Walter Susskind, drew on his experience with a similar organization in England to instil in his young musicians dedication and enthusiasm. The quality of their work has been admired not only on national tours but in England, France and Germany, countries which the orchestra visited on its first tour abroad in 1966. A smaller experiment in Edmonton may also one day benefit symphonic music and has attracted the interest of music educators throughout the country. Thomas Ralston has introduced there the Suzuki method of teaching the violin to pre-school children with teachers brought from Japan where the system has had great success. Edmonton is also



Teaching children to play the violin by ear, a method developed in Japan by Shinichi Suzuki, was first adopted in Canada in Edmonton. The method proved so successful that it is now being used in other centres as well.

Scene from the Lerner and Loewe musical "Camelot" which opened the Ottawa Little Theatre's 1968-69 season. Productions for the season will include eight plays and two musicals, each running for eleven performances to a fully subscribed house.



one of a number of western cities that have junior symphonies attached to professional or semi-professional orchestras; many of their graduates have found places in the National Youth Orchestra and senior organizations.

Les Jeunesses Musicales du Canada is aimed at the young audience. Again the model was found in Europe. In 1947 Gilles Lefebvre borrowed the idea of presenting lecture-recitals at low cost to a public under 30 and the organization now has circuits throughout the country. JMC's greatest strength is, however, in Quebec, where it has a summer camp of the arts at Mount Orford. This is hardly a camp in the usual sense for Mount Orford has facilities which include a fine concert hall and individual studios scattered throughout an attractive park. JMC was also at Expo, where the program at its pavilion was a popular feature of the fair's youth activities.

These developments are full of promise for the future but the present shows considerable achievement. Canada's two leading symphony orchestras now rank with all but the best of those in the United States and have successfully met the test of appearances in the more mature musical communities of Europe. In 1966 the Montreal Symphony made its second European tour, under the Federal Government's programs of cultural exchange with French-speaking countries. Its then conductor, the dynamic Zubin Mehta, won critical enthusiasm for himself and the orchestra in Brussels, Geneva, Paris and a number of French provincial cities. The talented contralto, Maureen Forrester, won renewed praise for her moving interpretation of Mahler's *Kindertotenlieder*. The Montreal orchestra is now under the direction of Franz-Paul Dekker. The Toronto Symphony took part the previous year in the Commonwealth Festival in London where the orchestra, under conductor Seiji Ozawa, established a new musical reputation for Canada.

The Vancouver Symphony has been strengthened considerably by its present conductor, Meredith Davies, and is well-integrated with the musical life of the city and the province, which it has toured annually for nearly ten years. At the end of the 1967-68 season, Winnipeg lost its conductor, Victor Feldbrill, who did much to build up the orchestra in that city. L'Orchestre Symphonique de Québec joined the ranks of these professional orchestras after



A natural amphitheatre in Gatineau Park just north of Ottawa is the setting for free summer concerts, performances ranging from jazz and folk to classical music and opera, singing, poetry readings and ballet. The 1968 audience numbered about 135,000.

its re-organization in 1963. Radio broadcasting is particularly important to the Halifax Symphony, the only professional orchestra in the Atlantic Provinces. Although these organizations provide most of the employment for orchestral musicians in Canada, there are some 20 to 30 community orchestras in other Canadian cities, mostly in Ontario.

There are few chamber music ensembles in Canada, a significant gap in its musical life. It has thus been encouraging to watch the steady development of the Orford String Quartet, whose young members first came together under the auspices of Les Jeunesses Musicales du Canada two years ago and who have since been performing occasionally while working with Lorand Fenyves at the University of Toronto. The Gabora String Quartet, though limited in its activity by individual commitments to the Montreal Symphony, made a university tour recently. The McGill Chamber Orchestra, directed by Alexander Brott, continues to serve a devoted Montreal audience and was well-received on a tour of the Soviet Union.

Dr. Boyd Neel's Hart House Orchestra also made a successful European tour, appearing at Benjamin Britten's Aldeburgh Festival and at the Bergen Festival in Norway. The University of Manitoba Consort also appeared at the 1966 Aldeburgh Festival, arousing considerable interest with a program of medieval and early Renaissance music performed on instruments which are reproductions of those of the period. Montreal's Baroque Trio and Vancouver's Cassenti Players are well-known within the country through fairly extensive touring. Yet few groups tour widely enough, or reach a large enough audience, owing in part to the scarcity of concert managements with a special commitment to Canadian artists. Solo artists are particularly affected by this situation and most must establish themselves abroad, with only occasional engagements at home.

Choral music has a traditionally important place in Canadian music, particularly in English Canada, where most cities of any size have a fairly active choral society. Best known of these is probably the Toronto Mendelssohn Choir which was given new life three years ago with the appointment of Elmer Iseler

as conductor. Mr. Iseler's high standards and fresh approach were first recognized with the group he formed at Stratford, the Festival Singers. Their competence in a varied repertoire has made them unique in Canada.

The Canadian composer encounters problems which are not unknown in other countries. Commissions are normally few — although the Centennial did create a boom in Canadian music — and, once performed, a work may not be heard again. Audiences generally are still unfamiliar with the language of newer music and tend to prefer their old favourites. While a change in public taste cannot be wrought overnight, the Canadian Music Centre hopes to have some influence on it. The attack is indirect, made through information programs aimed mainly at musicians, especially teachers and conductors. Established in 1958, this organization now has an extensive library of tapes and scores of Canadian music, catalogues of composers and their works, and study courses prepared for the use of students.

Visual Arts

Since the Group of Seven first overcame public resistance to their harsh new view of the Canadian landscape some 40 years ago, painters here have enjoyed considerable popularity among their fellow countrymen. The shock waves of each new style were quick to recede. Thus the 1948 *refus global* of the late Paul-Émile Borduas and the young Montreal automatistes is now respected as a document of historic interest, and Harold Town, *enfant terrible* of Toronto's Painters Eleven of the 1950s, now risks becoming a patriarch.

Official acceptance is not confined to institutions like the National Gallery, which has always been sympathetic to current trends. The Department of Transport has gilded its air terminal buildings across the country with painting, sculpture and graphic art and each station of Montreal's new Metro has its own visual character shaped by artists and architects. The Federal Government and the Province of Quebec now provide that a certain percentage of the cost of the construction of a building may be devoted to artistic embellishment. Expo 67 has been of special value to Canadian sculptors, whose costly medium requires such enlightened patronage; most sculptors of recognized standing were represented on the site.

Much of the credit for this public acceptance must go to the art museums whose active interest in contemporary artists has given them encouragement and kept them before the public. The National Gallery devotes much of its purchase account each year to the work of living Canadian artists and its biennial exhibitions, circulated widely throughout the country, are a continuing stimulus. The Gallery's major achievement in the celebration of Canada's Centennial was its exhibition in Ottawa, *300 Years of Canadian Art*, which was of unprecedented historical interest. This was complemented by a contemporary show, *Sculpture 67*, assembled by Dorothy Cameron for installation in Nathan Phillips Square before Toronto's new City Hall. Toronto's own art museum entered the Centennial year bolstered by new provincial assistance and became the Art Gallery of Ontario. Its recent record includes several exhibitions of major international importance, notably *Picasso and Man*, *Canaletto and Mondrian*.



Canada has a wealth of art forms in its traditional handicrafts.

The earliest form of art brought by the white man to this country was wood carving, which has been carried on by family groups in Quebec for generations.

Interesting Indian handicrafts are sold in a city shop run by Micmac Indians, the revenue being devoted to the economic development of their producers on a Manitoba reserve.



The Eskimo has an innate artistic ability. Working with his meagre native materials and simple tools he creates the beautiful articles that have become world-renowned.

Montreal now has two important institutions — the venerable Montreal Museum of Fine Arts and the recently opened Musée de l'art contemporain, operated by the province. In the past few years the Vancouver Art Gallery has become one of the most dynamic art museums in the country. Its varied exhibition program has included the highly original work of some of the younger artists of the community, while a most appropriate Centennial exhibition, *The Arts of the Raven*, was devoted to the art of the Indians of the Pacific Northwest. These Indians have produced the most developed work of any of Canada's native peoples. Among the smaller institutions, Victoria, Winnipeg and London deserve particular credit for the quality of their exhibitions. These public galleries are not salesmen of course and the artist depends for his market mainly on the art dealers, whose numbers have multiplied greatly in Canada over the past 15 years and who often are dedicated champions of the artists they serve.

There is an avid interest among artists and laymen alike in keeping in touch with developments in various parts of the country. Apart from circulating exhibitions, their needs are best met by the art magazines. For over 20 years *Canadian Art* has reported on artists and trends in the traditional form of a review devoted to the visual arts but in 1966 its publishers decided that the old format was not adequate. A new packaged magazine combining critical articles and an up-to-the-minute news sheet has taken the name *arts/canada*. *Vie des Arts*, published in Montreal, remains a more traditional review. The most important contribution yet made in this field is the Canada Council's Centennial project, *Canadian Painting, a History* by J. Russell Harper, a handsome volume published in English and French.

The substance supported by these structures of the Canadian art world is the work of the artists themselves. The scene today is full of variety, with marked regional variations. International influences abound and the pull of New York is strong for many Canadians. Some, like Robert Murray of Saskatchewan and Michael Snow and Joyce Wieland of Toronto have gone to live there. Some are commuters, like Yves Gaucher, the graphic artist whose work regularly takes prizes in major international competitions. Among the younger artists, however, there is a conspicuous striving to find a personal means of expression and new techniques which owe little to others except, perhaps, the right to experiment. Iain Baxter's bag sculptures are talked of not only in Vancouver but have also attracted the interest of those in other parts of the country who have had reports of the Vancouver Art Gallery's remarkable show, *B.C. Painting '66*. Other young Vancouver artists like Claude Breeze and Brian Fisher have completely different and personal styles.

Influences may be clear however, as in the magic realism of Christopher Pratt, inspired by Alex Colville, his internationally-known teacher at Mount Allison University in New Brunswick. There can also be the quality of like-mindedness, which binds artists like Greg Curnoe, Jack Chambers and their friends, living in London, Ont. This capacity to stimulate and challenge one another was the quality that forged a group located in Regina. Some key figures of that group, Ronald Bloore and Kenneth Lochhead, have departed, but their Emma Lake Workshop — which welcomed such sophisticated New Yorkers as Barnett Newman, Clement Greenberg and John Cage — remains a place where artists meet to test each other's ideas.

Writing

An outstanding literary happening of 1967 was the dramatic "break-through" of French-Canadian literature in France. In the autumn of 1966 it was said that every Parisian publisher had "his own Canadian", and several novels by Quebec authors were front-runners in the great French literary competitions. One of them, Marie-Claire Blais' *Une Saison dans la vie d'Emmanuel*, won the Prix Médicis. Perhaps the most noteworthy of them, Réjean Ducharme's *L'Avalée des avalés*, ran strongly in the Goncourt competition, and won a Governor General's Award and a Province of Quebec literary prize. These two novels showed a freshness of vision and an unconventionality of style that now have come to be identified with French-Canadian writing. More in the style of France's *nouveau roman* were Hubert Aquin's *Prochain épisode* and *La jument des mongols*, by Jean Basile, both of which figured in this peaceful "Canadian invasion". The wealth of new literary talent springing up in French Canada stirs great hopes for the future. Among the young novelists who have brought out promising works are Diane Giguère, Suzanne Paradis, Jacques Renaud, Laurent Girouard and André Major and, among poets, Michel Brault and Paul Chamberland as well as Gérard Godin, whose book of poems in Canadian slang, *Cantouques*, was one of the more controversial literary creations of 1967.

Literary criticism of a high order has long been featured in such newspapers as *La Presse* and *Le Devoir*, of Montreal, and Quebec's *Le Soleil* — so high, indeed, that the collected criticism of Jean-Éthier Blais, taken mostly from his column in *Le Devoir*, was awarded two literary prizes in 1967. The two works of Mr. Blais, *Signets I* and *Signets II*, offer a stringent and highly personal view of classic and new works of both France and Canada. A milestone in literary scholarship was reached in September 1967, with the appearance of René de Chantal's two-volume study, *Marcel Proust, critique littéraire*. Other lively criticism is offered in several little magazines and in the periodical press.

One of the more eagerly awaited Canadian novels of 1967 was Hugh MacLennan's *Return of the Sphinx*, in which he carries the French-English theme of *Two Solitudes* from the personal to the political level. Two books by the young Montreal writer, Hugh Hood, appeared almost simultaneously: one, *Around the Mountain*, a series of sketches of Montreal, attached casually to story lines, and the other, *The Camera Always Lies*, a highly-plotted story of an ageing Hollywood star. David Lewis Stein's *Scratch One Dreamer* is a rare Canadian novel of commitment, comparing labour unrest of the 1930s with today's peace marches, while Peter Taylor evokes nostalgia for the passing of the great days of the railroad in his picaresque *Watcha Gonna Do Boy . . . Watcha Gonna Be?* In *Mirror on the Floor* George Bowering applies his poet's vision to a fictional study of sex and violence in Vancouver; and Austin C. Clarke, Barbados-born, tells of West Indian immigrants to Toronto in *The Meeting Point*.

Some highpoints of poetry in English were the appearance of Raymond Souster's new volume, *As Is*; D. G. Jones' *Phrases from Orpheus*; the "found poems" of John Robert Colombo in *Abracadabra*; Irving Layton's *Periods of the Moon*; Alden Nowlan's *Bread, Wine and Salt*; and *North of Summer*, Alfred

Purdy's poems of the north. An important event, too, was the publication of A. J. M. Smith's excellent anthology, *Modern Canadian Verse*.

Centennial year proved a boon to Canadian publishers of both languages, and there was a steady outpouring of works ranging from a Canada Council sponsored history of art in Canada (published in both English and French editions) to ethnic cookbooks. History, sociology, geography, art, all have been treated in centennial-inspired volumes, sometimes with scholarly, sometimes with journalistic skill. No group made a more dramatic contribution to the Centennial than Canada's publishers — all the more impressive because only a few years ago many were mainly clearing-houses for foreign imports.

National Gallery

In 1966 the National Gallery of Canada continued to play its role in the encouragement of the arts in Canada and of Canadian art abroad. At the Biennale in Venice it showed works of painters Gaucher and Colville and of sculptor Etrog. It collaborated with other Canadian galleries in producing exhibitions for circulation. The Director of the Beaverbrook Gallery in Fredericton arranged an exhibition of the work of Jack Humphrey, its curator one on the artists of the Atlantic Provinces, and the Director of the Winnipeg Art Gallery a retrospective of the work of the German expressionist, Gramatté.

A retrospective exhibition of the work of J. E. H. MacDonald, a member of the Group of Seven, which had been arranged by the Art Gallery of Toronto, was shown early in the year in Ottawa. Two large exhibitions of contemporary art, circulated by other museums, were also exhibited at Ottawa. One was "London: the New Scene" arranged by the Walker Art Center in Minneapolis; the other, an exhibition of Latin American Art, "The Emergent Decade", was from the Guggenheim Museum in New York. A further taste of the art of other countries "Ottawa Diplomats Collect", was provided by an exhibition arranged by the National Gallery Association. The most important exhibition in the Print galleries was undoubtedly of the prints and drawings by Dürer from the National Gallery's collection.



Dr. Jean Boggs, Director of the National Gallery, Mrs. Lionel Massey and Carl Schaefer discussing Mr. Schaefer's "The Dark Wood", one of the 92 Canadian paintings selected from the Vincent Massey Bequest to be included in the National Gallery collection.

A new emphasis on photography was apparent in the exhibition at Ottawa, and subsequent circulation of two small exhibitions from the Museum of Modern Art, New York, of the work of Jacques Henri Lartigue and Walker Evans, and a larger exhibition arranged by the National Gallery, the "Pleasures of Photography: the World of Roloff Beny".

Important acquisitions have been made in recent years. The three 17th century paintings by Gentileschi, Guercino and Jordaens which were bought with special appropriations at the Spencer-Churchill auction at Christie's in the spring of 1965, were added to the gallery walls. The most unusual purchase in 1966 was an 18th century wooden sculpture, "Tobias and the Angel", from the Ursuline Convent in Vienna which the National Conservation and Research Laboratory has been able to demonstrate still retains its original polychromy.

Three paintings were acquired to strengthen the early twentieth-century collection — a Cubist work of about 1914 by the Russian painter, Popova, a painting by van Dongen of Pavlova and Rubinstein dancing in "Cléopâtre" during Diaghilev's first season in Paris in 1909, and a great work of 1920, "The Mechanic," by Fernand Léger. Additions were made to the Prints and Drawings collection including a beautiful impression of Rembrandt's etching of "Jan Lutma". Generous purchases were made of Canadian art including paintings by Plamondon, Krieghoff, Curnoe, Bush and Molinari.

A new Director, Dr. Jean S. Boggs, was appointed and took office on June 1, 1966.

National Library

On June 20, 1967, a permanent National Library and Archives Building was formally opened in Ottawa by the Prime Minister. The new structure has a floor area of 13 acres and an initial 81 miles of steel shelving. The book collection consists of 400,000 volumes, supplemented by microcopies of more than 100,000 additional titles and the newspaper files constitute the largest collection in Canada.

Canadiana, a monthly catalogue of new books and pamphlets relating to Canada is compiled and published by the Library. This includes details of trade publications, official publications of the Government of Canada and the ten provinces, and of films and filmstrips produced in Canada. More than 12,500 titles were listed in 1966.

The National Union Catalogue, listing more than 9,000,000 volumes in some 275 government, university, public and special libraries in all provinces, forms an up-to-date key to the main book resources of the country. A union list of serials in the humanities and social sciences, when completed, will complement the *Union List of Scientific Serials in Canadian Libraries* published by the National Science Library. A retrospective bibliography, *Canadiana, 1867-1900*, which will list more than 25,000 titles is under production.

National Film Board

In its role as government film agency the National Film Board produces and distributes films for theatrical, television and 16mm. community showings together with news-stories, newsclips, trailers, filmstrips and still photographs.

Scene from "High Steel",
National Film Board
production that has won
several international
awards. It is the story of
timber sure-footed men
who work at dizzy heights
erecting the steel skeletons
for skyscrapers, most
of them Indians from the
Caughnawaga Reserve in
Quebec.



During the fiscal year 1965-66 the Board produced 334 motion picture items, including 103 original films, 56 revisions, 80 foreign-language versions, 40 news-stories, and 55 other motion picture items. The Board also produced 105 filmstrips, of which 27 were in languages other than English or French, 54 photo stories and 20 slide sets of which 12 were bilingual. At various festivals it won 77 awards for its films, filmstrips and still photographs.

The National Film Board productions allow millions of people outside Canada to become better acquainted with this country, its people and its geography, as well as with its economic life and cultural achievements. For example, in 1965-66 there were 18,829 theatrical bookings of NFB films in various countries and the considerable increase that occurred in number of telecasts and sales of prints over the preceding year was partly accounted for by the much greater number of NFB foreign-language films available. Efforts have been made to increase the distribution of Canadian travel films in the United States, and distribution agreements have been concluded allowing the Board's films to be seen in many new nations, particularly in French Africa.

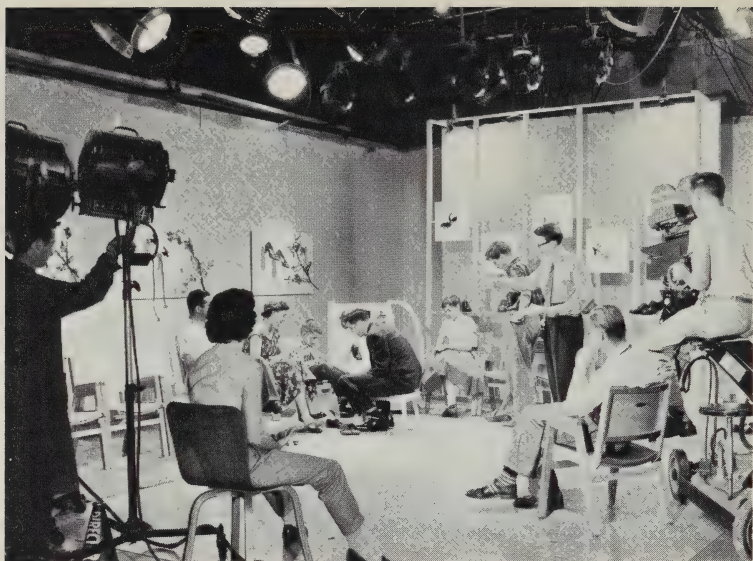
In Canada, 530,660 community screenings of 16mm. films were recorded by the Board reaching an audience of over 30,000,000. This type of distribution is based on a nation-wide system of film circuits, film councils and libraries supported by organizations and individuals engaged in community activities. Students in schools and universities comprised about half of the reported audience. Abroad, through libraries in Canadian posts, under exchange agreements, and through foreign agencies in about 70 countries, 502,622 screenings were shown to an audience of 61,000,000.

Theatrical bookings of NFB films in Canada totalled 10,359 in 1965-66. Television screenings numbered 6,923, an average of 19 screenings of NFB productions on television every day of the year.

A considerable audience is reached through the sale of 16mm. prints. The Board sold 5,233 of its own prints in Canada, and 6,635 prints abroad. More than 48,000 filmstrips were sold in Canada.

Private Film Companies

Canadians now produce more new motion pictures each year than new books. In addition to the Canadian Broadcasting Corporation and the National Film Board, Canada's two largest film producers, there are some 80 private



A production under way at Crawley Films studio at Ottawa. Canada's private film industry is concerned mainly with the production of films for television entertainment or information, documentaries and films for commercial use.

film production companies across Canada, some quite large and many very small. Most of the film producers are in the Toronto area, some are located in Montreal and a few others in the main centres across Canada. The largest company is in Ottawa. Canada has a number of motion picture laboratories and together they annually process and print more than 100,000,000 feet of film.

Together, these producers each year turn out about 1,000 new motion pictures (two thirds in colour) in addition to 7,000 commercials, newsreels, trailers, filmstrips, and so on. The dollar volume of film producers has quadrupled in the past ten years. Most of the motion pictures are designed for television entertainment or information, but several hundred films for corporations, associations and governments are produced for marketing, public relations, training and information. In addition, a number of theatrical shorts and a few theatrical features are made each year. The Federal Government has formed a Film Development Corporation to aid this branch of the industry.

Radio and Television

Broadcasting in Canada has developed over a period of about 50 years as a combination of public and private enterprise. Today, radio and television services reach most of the Canadian population.

Canadian Broadcasting Corporation. The CBC is a federal Crown agency which operates the national broadcasting service. It maintains and operates broadcasting stations and networks and originates and secures programs from within and outside Canada. The year 1966-67 was its 30th of operation when, in

seventeenth-century
Quebec as it appeared in
a CBC French tele-
vision production depict-
ing the life and times
of Pierre Le Moyne
d'Iberville.



In addition to its normal services, the Corporation was engaged in a wide variety of special projects. Colour programming began on Sept. 1, 1966, and by March 1967 both French and English networks were carrying up to 40 p.c. of their weekly network programming in colour, with additional colour programs, mainly on film, seen in local time.

Centennial events. CBC radio and television gave extensive coverage to Centennial events across the country, and to royal and state visits to Canada. There were more than 70 major live broadcasts in Centennial Year — among them the Expo 67 official opening, which was carried via satellite to almost every country in western and eastern Europe, and to Japan, Australia, Tunisia, the United States and Britain. The CBC International Service covered Centennial and Expo events in its regular shortwave service in 11 languages, and also supplied coverage to broadcasters overseas by cable and tape. At Expo 67, radio and television production facilities were provided for all Canadian and visiting broadcasters in the International Broadcasting Centre.

Special Centennial programs on CBC radio and television reflected the development of Canada and the variety of its people — such programs as “The Long Hundred”, “Album of History”, “Vivre en ce Pays”, and “L’Histoire . . . comme ils l’ont faite”. Other Centennial series looked outward — programs like “A Choice of Futures”, “The New Africans”, and “Terre des hommes”. Others — “100 Year Young”, “1967 and All That”, “Mon pays, mes chansons” — simply invited Canadians to enjoy themselves and their country.

The CBC commissioned new works by Canadian composers and writers, held play-writing, song-writing, and art competitions, and offered special public concerts. It arranged for the commercial release, through RCA Victor, of the first 17 LPs in a continuing anthology of Canadian music recorded by the CBC International Service. The Corporation produced LP recordings of readings by Canadian poets, and of “Century”, one of the special radio documentaries for Centennial Year. The CBC International Service published a four-volume History of Canada from one of its major radio series. Both the French radio network of the CBC and the CBC International Service held international Centennial contests, with trips to Canada and Expo for the winners.

High school students from Glasgow, Scotland, and Ottawa, Canada, compete in the international edition of the CBC series "Reach for the Top", a question and answer program designed as a showcase for exceptional students.



Special efforts were made to reach Canadians who might not otherwise be able to share in the Centennial. July 1 celebrations were broadcast by short-wave to isolated northern listeners, and by shortwave and cable to Canadian Armed Forces radio stations in Europe. The CBC Northern Service arranged a series of local talent shows for remote communities in the north, and the CBC Armed Forces Service followed a birthday party theme in its annual touring concert parties for Canadian servicemen.

News and special events. The CBC News Service enlarged its main national newscasts in both radio and television, and expanded its use of filmed coverage and on-the-spot reports by staff correspondents. On the death of Governor General Georges P. Vanier, special programs were carried by all CBC networks. CBC television coverage of the state funeral in Ottawa was seen by more than 6,000,000 Canadians.

Taping a program for CBC television series "Ballads and Songs" which featured performers from several cities across the country and appeared for 13 weeks on both English and French networks.



CBC television news coverage of the 1967 Middle East crisis was the most extensive sustained telecasting of any event in the history of Canadian television. AM and FM radio also gave wide coverage, with certain CBC-FM stations carrying the United Nations debates in full. All CBC radio and television networks covered the two-week Pan-American Games held in Winnipeg and facilities were provided for foreign broadcasters.

Film production. Notable among the CBC's increasing film projects was the original drama series "Wojeck", which attracted the largest audience ever for Canadian-produced drama. Also widely enjoyed was "Galapagos", a colour series filmed in the Galapagos Islands by the CBC's Science Unit. Production was started on three feature films in colour, two of them as co-productions with the National Film Board. The CBC French television network started co-production, with Swiss, French and Belgian broadcasters, of a 39-week historical drama series in colour, based on the life of the 17th-century Quebec figure, Pierre Le Moyne d'Iberville.

International activities. The CBC took part in the "Our World" global telecast of June 25, 1967, contributing items from several points in Canada, and carrying the two-hour program on both its English and French TV networks. "Our World" was a project of the European Broadcasting Union, one of several international broadcasting organizations of which the CBC is a member. By means of space satellites, the program beamed live sequences from 14 contributing countries to viewers on five continents. CBC radio and television programs won some 20 awards in international competition, and CBC programs were sold or exchanged in more than 25 countries. In Moscow, the CBC signed an agreement with broadcasting officials of the Soviet Union providing for the exchange of radio and TV programs and permitting the CBC to produce television films in that country. Also, the CBC was asked to conduct and co-ordinate studies for a proposed Caribbean broadcasting network.

Coverage and facilities. By 1967, CBC radio was available in some form to 98.6 p.c. of all Canadians, and CBC television to 95.8 p.c. Extension of coverage during 1966-67 involved new CBC relay stations or power increases at more than 30 locations. To accelerate TV coverage in remote areas, the CBC began to install small, self-contained transmitters capable of broadcasting taped programs. In addition to the major installations for colour and at the International Broadcasting Centre, construction was begun on a new broadcasting complex to consolidate the CBC's Montreal facilities. CBC studies continued on the possible future use of space satellites in the domestic distribution of network programming.

Private Stations

While the creative and energetic efforts of home-town stations are most keenly felt in the community each serves, much of private broadcasting success stems from close ties with strong regional, national and international associations. Such bodies as the Canadian Association of Broadcasters, the Inter American Association of Broadcasters, and various regional organizations help bind broadcasters into one family, where ideas and resources are freely shared.

In this way nearly all of Canada's 370 private stations can draw from and contribute to the rich fund of wide general knowledge needed to provide all Canadians equally with the best in local, national and foreign programming. Many national and international awards for outstanding news and public affairs programs have been won by private broadcasters. Operators of private stations are usually out-going public-spirited persons and their broadcasting staff often become popular personages who are able to solicit the interest of their listeners in local welfare or assistance projects that otherwise might not receive attention, thus giving valuable service to their communities. Most privately owned television stations and many of the private radio stations are affiliated with the CBC and help to distribute national broadcasting services over CBC networks. Of the unaffiliated private television stations, 11 form the CTV Television Network Limited which was established in 1961 and now reaches 63 p.c. of the population.

Private stations broadcast more than 2,500,000 hours annually, with some stations on the air 24 hours a day, 365 days a year. This massive flow of information and entertainment is available to the 17,000,000 Canadians within reach of one or more of Canada's 247 private AM stations, 55 FM stations, six shortwave or 62 television stations. Staff varies from 20 at a small radio outlet to 450 at the largest TV operation.

Ninety per cent of private stations are members of the Canadian Association of Broadcasters, a voluntary trade association established in 1926 to foster and develop, protect and serve the interests of private broadcasting. CAB Program Exchange offices in Toronto and Montreal gather and distribute vast quantities of excellent Canadian, and some foreign, programs. In addition, radio and television sales bureaus, which CAB was instrumental in setting up, produce valid and valuable material on the two industries. Sources of program material include a station's own productions, wire services, free-lancers and production companies.

Sports

Canada's Centennial was an exceptional year for sports. In fact, it has been this country's most exciting year in amateur sports. Nine World Championships and tournaments were staged in Canada during 1967 and several other international competitions were held in this country for the first time. The Fifth Pan-American Games in Winnipeg highlighted this exceptional year and gave Canada the opportunity to be host to an international competition of this scope. Canadian athletes won 12 first-place gold medals, 37 second-place silver medals and 43 third-place bronze medals.

A major new sports event came into being with the inauguration of the Canadian Winter Games, in February 1967, in Quebec City. Some 2,000 athletes from the ten provinces and the two territories competed in 13 different sports. The success of the First Canadian Winter Games, designed to fill the void in the quadrennial cycle of sports events that includes the Olympics, the Commonwealth Games and the Pan-American Games, has brought about the decision to organize Summer Games in 1969. These will be held in Halifax-Dartmouth.

Canada's Elaine Tanner being congratulated by the Hon. John Munro, Minister of National Health and Welfare, as she emerged from the pool after setting a new world record in the 100-metre backstroke at the 1967 Pan-American Games held in Winnipeg. She won two gold and three silver medals.



The 10th World Water Ski Championships brought to Canada the biggest international championship in North America in 1967. Thirty countries participated in the eight-day event, held in Sherbrooke, Quebec. For this occasion, North America's first public site devoted exclusively to water skiing was established at Lac des Nations. The Ski Nautique Chalet is a two-storey, \$125,000 glass and concrete structure surmounted by four pairs of crossed water skis reaching 100 feet above the lake.

Additional international competitions supported through the Fitness and Amateur Sports and Centennial Sports programs included a Tri-Country Athlete Track Meet in Ottawa; two weight-lifting matches among athletes from Canada and top national teams from the Pan-American Games in Winnipeg; a cross-country tour by the top basketball teams competing at the Pan-American Games; an international ski-jumping meet that was staged at Ottawa in February; a demonstration softball tournament in conjunction with the Pan-American Games; the Commonwealth Junior Tennis Championships in conjunction with the Canadian Junior Tennis Championships; and an international archery tournament. Besides water skiing, world championships were also held in fencing, badminton, lacrosse, horseshoe pitching, lawn bowling, figure skating, as well as in 12 different classes of yachting.

Nancy Greene is one of Canada's favourite athletes, as well as the world's best woman skier. Here she is (left) just after she won the giant slalom in the 10th Olympic Winter Games at Grenoble in 1968.





In Canada there is sport, adventure and relaxation for every visitor. Seasonal changes add to the variety of recreational pursuits. Skiing, curling and snowmobiling in winter may be followed by the fun of maple sugaring in the spring, by such sports as golf and sailing, or



by such exciting events as the Calgary Stampede where the lusty spirit of the Old West is revived, or by such increasingly popular spectator sports as a loggers' sports day with its exhibition of woodland skills.

National events and competitions organized with Fitness and Centennial assistance included a cross-country tour by the Marylebone Cricket Club of England; a country-wide tour by the international field-hockey teams competing at the Pan-American Games; a cross-country tour by the All-England Rugby team; and a Centennial Canadian Midget Hockey Tournament. Assistance to add special Centennial events to the annual Dominion of Canada Rifle Association meeting, and provision of a camp program for a number of young Canadians and Duke of Edinburgh Award winners from other countries, were also supported.

The First International Paraplegic Games were held in Winnipeg immediately following the Pan-American Games. Some 175 handicapped athletes from the countries taking part in the games competed in 15 different sports. There have been wheelchair sports in Canada for more than 16 years, and as far back as 1953 Canadian wheelchair teams have competed in international paraplegic games known as the Stokes-Mandeville Games.

The people of Canada benefited in many ways from this impressive series of international and national events held in Canada during Centennial year. Apart from the publicity given to sport and fitness as an inspiration to Canadians, these events lead to the construction across Canada of many excellent sports facilities of continuing value to the population.

Many festivals and games are held annually in areas where a certain ethnic group is prevalent. Even though their families may have been in this country for generations, they enjoy remembering for a day the traditional dances and activities of their forbears.



Celebrations and Festivals

Holidays. In addition to the holidays that are celebrated throughout Canada, festive-days are observed in two provinces and one territory. National holidays in 1968 are: *January 1*, New Year's Day; *April 12*, Good Friday; *April 15*, Easter Monday; *May 20*, Victoria Day; *July 1*, Dominion Day; *September 2*, Labour Day; *October 14*, Thanksgiving Day; *November 11*, Remembrance Day; *December 25*, Christmas Day. Provincial holidays in Newfoundland are: *March 17*, St. Patrick's Day; *April 23*, St. George's Day; *June 24*, Discovery Day; *July 12*, General Holiday; *August 7*, Regatta Day. Provincial holidays in Quebec are: *January 6*, The Epiphany; *February 28*, Ash Wednesday; *May 23*, Ascension Day; *June 24*, St. Jean Baptiste Day; *November 1*, All Saints Day; *December 8*, The Immaculate Conception. *August 17*, Discovery Day (commemorating the discovery of gold) is a holiday in the Yukon Territory.

Major Events. Outstanding events of the 1968 season, listed according to month, include the following: *May 18-25*, Canadian Tulip Festival, Ottawa; *19-25*, Dominion Drama Festival, Windsor, Ont.; *May 31-June 3*, Annapolis Valley Blossom Festival, Nova Scotia.

June 10 (to Oct. 12) Stratford Shakespearean Festival; *22*, Queen's Plate — thoroughbred horse racing; *June 28-July 1*, Flin Flon Trout Festival; *June 29-July 6*, Pion-Era days, Saskatoon, Sask.; *June 30-July 4*, International Freedom Festival, Windsor-Detroit.

July 1, special Dominion Day celebrations, Ottawa; Charlottetown, P.E.I. Festival — all Canadian humour and musicals (*to August 31*); Samuel de Champlain Day, Quebec; *1-4* Frontier Days Regional Fair and Rodeo, Swift Current, Sask.; *4-13* Calgary Exhibition and Stampede, Alta.; *10-14* Lobster Festival, Shediac, N.B.; *13-23* Vancouver Sea Festival; *13-14* International Regatta — Canada's largest speedboat races, Valleyfield, Que.; *18-27* Klondike Days, Edmonton, Alta.; *22-24* Northwest Round-up and Agricultural Fair, Swan River, Man.; *24-30* Red River Exhibition, Winnipeg; *26-27* Annual Sun Flower Festival, Altona, Man.; *28-31* Fishermen's Festival, Cape Bauld, N.B.; *31* Natal Day celebrations, Halifax, N.S.

August 2-3 National Ukrainian Festival, Dauphin, Man.; *5-12* Gaelic Mod, St. Anns, N.S.; *5-10* Saskatoon Exhibition, Sask.; *7* Natal Day celebrations, Dartmouth, N.S.; Annual Regatta (oldest organized sports event in North America), St. John's, Nfld.; *7-10* Peach Festival, Penticton, B.C.; Kelowna International Regatta, B.C.; *12-17* Square Dance Jamboree, Penticton, B.C.; *9-11* Nova Scotia Festival of the Arts, Tatamagouche; *Aug. 15-Sept. 2* Canadian National Exhibition, Toronto, Ont.; *17* Discovery Day, Dawson City, Yukon Territory; *Aug. 24-Sept. 2* Pacific National Exhibition, Vancouver, B.C.; *26-29* Fall Gift Show, Montreal, Que.

September 2, Folk Festival, Nation-builders, Toronto, Ont.; *2-7* Exhibition and Provincial Livestock Show, Fredericton, N.B.; *20-28* Grape and Wine Festival, St. Catharines, Ont.

October 16-19, International Ploughing Match, Guelph, Ont.

November 13-16, Monctonian Curling Bonspiel and Donkey Bar-B-Que, Natal Week, Moncton, N.B.; *15-23* Royal Winter Fair, Toronto; *30* Grey Cup game of Canadian Rugby Football Championship.

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Back cover

University of Manitoba plant scientists have produced the world's first synthetic grain species. Triticale, a cross between durum wheat and rye, is particularly rich in proteins, making it a potential answer to the world's food shortage. The grain should be released for commercial production about 1970.

As important as their success with Triticale is the scientific team itself which is confidently working on further crosses between members of the grass family to produce better grains. A project now approaching the pilot stage involves coating seed and fertilizer with plastic so that it may be sown in fall and be in a position to get full benefit of spring moisture.



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